REVIEWS.

ART. VII.—*A Treatise on Operative Surgery; comprising a Description of the various Processes of the Art, including all the new Operations; exhibiting the state of Surgical Science in its present advanced condition; with eighty Plates, containing four hundred and eighty-six separate illustrations.* By JOSEPH PANCOAST, M. D., Professor of General, Descriptive and Surgical Anatomy, &c. &c. Philadelphia: Carey & Hart, 1844. 4to. pp. 380.

THE English language has but little to boast of in systematic surgical compilations; and even less, in systems of operative surgery proper. Our surgical authorities appear to have been mainly interested in establishing correct principles in anatomy and pathology, and to have rarely thought of systematizing. We have admirable compends, invaluable treatises on many of the specialities, with innumerable memoirs, essays and observations on detached subjects in every department of surgery, either published apart, in our periodical literature, or in the transactions of our societies; yet up to the present day we can boast of nothing to compare in systematic surgery, with the masterly productions of Heister, or of Boyer; and in operative surgery, with the long since antiquated Demonstrations of Dionis, the *Médecine Opératoire* of Sabatier, the erudite Treatise of Velpeau, the Manual of Malgaigne, or the magnificently illustrated work of Bourgery.

The surgical authorities of our own country are still less disposed to systematic performances than the surgeons of Great Britain. We have, it is true, a few very useful compends, prepared by teachers as text-books for their students; but in operative surgery, prior to the appearance of the work before us, we can refer to nothing from the pen of an American. Our surgical teachers after laying down general rules for operating, have been disposed to leave all the minute details to the common sense of the practitioner. Practice, and not the statute, would appear with us to be the common law by which all such matters are to be regulated. This, perhaps, may, after all, be considered good policy in educating the youth of America, who have long had the reputation of learning to whittle before they learn to speak, and of understanding the use of edged tools instinctively. Science might confuse in attempting to teach them what they already know, or at any rate, appear to know, sufficiently well without it.

So far as we now recollect, the works on operative surgery by Sharp, Charles Bell and Averill, are the only ones entirely devoted to this department of the art, that had appeared in England prior to the recent publications of Liston and of Fergusson.

Sharp's treatise, the first of these in order of time, founded on a fair share of personal experience, is mainly devoted to the major operations; and of these it treats with almost Celsian brevity. A pupil of the celebrated Cheselden, he dwells with marked interest on the improvements introduced by his master. He has but little favour for foreign authorities,

particularly the French. "It is true," says he, "we have a few translations from the writings of foreigners; but besides that they are unacquainted with these improvements, their manner of describing an operation is so very minute, and, in general, so little pleasing, that could nothing new be added, or nothing false exploded, the possibility of only doing it more concisely and agreeably, would be a reasonable inducement for the attempt." Well for some of our recent writers, and better for their readers, had they, in preparing their works for publication, pondered on the allusion conveyed in the latter clause of this passage.

The operative surgery of Charles Bell, at its first appearance, must have been founded on a rather small stock of surgical experience, such as is acquired, for the most part, in the dissecting room, and by reflecting on the practice of others. It has the merit of pointing out, in a forcible manner, the intimate relation between correct principles in surgery and an accurate knowledge of anatomy. It is adorned with numerous spirited sketches from the pencil of the author himself, which will compare advantageously, so far as they go, with almost any thing of the sort that has since appeared. Surgical science, however, has long since shot far ahead of this performance, which, but for the reputation of its author in other departments, might ere this have been forgotten.

Of Mr. Averill's little volume we have only to say that its claims are very modest. It was originally designed only as a manual for assisting the student in his manipulations on the dead body.

Passing by these earlier essays, we come to the "Practical Surgery, with one hundred and twenty engravings in wood," by Mr. Liston. The merits of this highly practical performance are sufficiently known; and too highly appreciated by the profession to be called in question here. Its author has thought and acted too much for himself, too much on the responsibility of his own cool and collected judgment, to be the mere compiler of other people's labour. His profound knowledge of the principles and bearing of his art, his powerful and rapid hand, his delicate and accomplished touch, have impressed his name indelibly on the records of surgery. His treatise is invaluable as the history of his own practice. But, after all, it is only the practice of Mr. Liston.

Mr. Fergusson, with some of the defects of the former, has many of his sterling qualities;—correct in his anatomy, spirited in his descriptions, skilful in his operations; a practical, but not a finished teacher. In his recent "System of Practical Surgery," Mr. Fergusson, like Charles Bell, has had an eye more directly towards the student and the dissecting room. The practitioner will find in it many useful suggestions, and an excellent but not a complete system of the operative surgery of the day.

With this hasty survey of what had already been effected in the department of operative surgery, by systematic writers in England, we are somewhat prepared to give an estimate of the ground yet unoccupied, and which Dr. Pancoast has attempted to appropriate. Prior to the appearance of the work before us, then, we were without a classical treatise on operative surgery, comprising a description of all, or even most of the processes of the art. Such treatises, however, existed in other languages; and Dr. P., by the aid of these and by other means, has undertaken to supply this marked deficiency. The title of his work, "A Treatise on Operative Surgery, comprising a Description of the various Processes of the Art, including all the New Operations, exhibiting the state of Surgical Science

in its present advanced condition; with eighty Plates," &c., is sufficiently ambitious.

It was formerly the fashion, in publishing compilations, to make some allusion, in the title-page, to selections or quotations from the best authors; a modest practice this, that of late is getting into disuse. Thus, some thirty years or more ago, was published in Philadelphia, in one octavo volume, a useful digest of the four volumes of Benjamin Bell, under the title of "A System of Surgery, extracted from the works of B. Bell, of Edinburgh, by N. B. Waters, M. D." So also about the same era appeared in New York, in two octavo volumes, a similar digest of the eleven volumes of Baron Boyer, under the unassuming title of "A Treatise on Surgical Diseases, and the Operations suited to them, by Baron Boyer; translated from the French, by Alexander H. Stevens, M. D." This last very useful digest, notwithstanding its honest title-page, succeeded, some how or other, in holding for many years a favourable place in the estimation of the profession. But, as we have already said, this primitive mode of announcing new books is gradually growing obsolete. The present is an age of improvement, as well as of book-making; and every teacher and professor must have, for the benefit of his pupils, a text-book of his own, with his own name in front of it, no matter whence his materials are derived. Nay, so numerous are the advantages attending the present easy modes of book-making, that the business is no longer confined to professors.

It has been intimated, and such probably is the fact, that this modern improvement is a discovery of publishers, who appear to have found out that useful scientific works are no longer saleable unless announced as the production of some one else than their real authors. We are told by an ancient legend that Faustus, in order to acquire the art of multiplying books by magic, was obliged to sell himself to Satan. So it is with such modern book-makers as sell themselves, with not even penury as an apology, to the publishers. In giving their name to works to which they have no other claim than as translators, abbreviators, annotators or remodelers, they may, like Faustus, do good in their day and generation; but, then, they must not be disappointed if obliged, in reputation, to share the fate of Dr. Faustus in the end.

But Professor Pancoast does not claim for the work before us the character of an original production. The necessity, he observes, of thoroughly illustrating the operations of surgery, has long been felt. Almost every modern surgeon of distinction, and especially Camper, Scarpa, Cooper, Hesselbach, Bell and Dupuytren, have contributed to the attainment of this end.

"The attempt to collect the newest and completest modes of illustration into a continuous whole, has been made but in two instances,—by M. Froriep, of Berlin, who has issued them in numbers, without any other regard to order than the time of their appearance; and by M. Bourgery, of Paris. The voluminous and expensive character of these works, and especially of the latter, which is as yet but little more than half completed, as well as their being clothed in a foreign language, renders them, in a great degree, inaccessible to the American surgeon. With these admirable treatises before him as a guide, and having at hand the greater portion of the surgical works which have recently appeared in various languages, and with the advantage which nine years continuous service in one of the largest hospitals of North America has given him, not only in comparing, to a certain extent, the value of the different methods, but in enabling him to obtain a large number of accurate drawings of operations which have been done

by his own hand, the author has endeavoured to furnish a work that shall represent, so far as its limits will allow, the operative surgery of the day."

The work, then, according to this announcement, and as every work pretending to set forth the present improvements in operative surgery should be, is substantially a compilation; but, as we are led to infer by the foregoing passage from the advertisement, with characteristic features of its own of sufficient merit to commend it to our most respectful consideration.

Against judicious compilations we have nothing to advance. We cannot do without them. The enlightened and laborious compiler, provided his research has been extensive, and mostly among original authorities, and his collections thorough and judicious, deserves, and usually acquires quite as much credit as the inventive and original writers from whom his materials are directly drawn. But then, every book detailing the opinions or procedures of original writers or operators is not in this sense a compilation. There is such a thing as compiling from compilers, and of making a very small modicum of research pass for infinitely more than it costs. Paré, although a benefactor to his race, by his admirable innovations, was a skilful and laborious compiler. Heister was a compiler who has had but few, even up to the present day, to compete with him. Mr. Samuel Cooper is a compiler, and so is M. Velpeau. But we have some few scruples of conscience against placing Professor Paneoast in such company. For, notwithstanding the allusion to numerous sources of information, which we have already quoted from his advertisement, his work affords no evidence that his research has been at all extensive. We do not wish to infer that his reading has been limited, that he may not have consulted numerous authorities, or that he has contributed nothing valuable of his own;—but we cannot resist the conviction that the great mass of his text, and at least three-fourths of his lithographic illustrations, have been drawn from a single source. Some of those who peruse the work may imagine they see the ghost of Velpeau in every page; others at every turn detect the hand of Malgaigne. For ourselves we see but little else in this production than a miniature reflection of Bourgery. We have not, it is true, compared it word for word with the voluminous production of this French author; not having the work of the latter continually at hand for so doing. But we have compared, at random, different sections of the two performances; and found the resemblance so very close, that we are forced to believe the one has not only served as a model, but has also supplied the mass of material for the other.

It is easy to reconcile these different resemblances. M. Velpeau, distinguished as much for his professional erudition as for his practical ability, has presented to the profession a system of operative surgery so learned as to constitute a store-house for those who have since followed him. M. Malgaigne has adopted his plan, condensed his materials and added some judicious observations of his own, especially in his sections devoted to operative anatomy, and in his appreciation of the different operative procedures which he describes as applicable to a given object. M. Bourgery, with the writings of both these authors before him, has had little else to do than to follow in their train, improving somewhat upon their plan, by the addition of some valuable materials on the history of particular classes of operations, and what is still more characteristic of himself, by

his system of magnificent lithographic illustrations. There is, then, a most striking resemblance common to the writings of these three authors; original in Velpeau, reflected in Malgaigne, modified in Bourgery; and, finally, communicated, indirectly, to the work under consideration.

How far Professor Pancoast has drawn from the work of Froriep, we are unable to determine, never having had an opportunity of consulting that German publication. But certain it is, unless M. Bourgery has drawn from the same source, that Professor P. can be but little indebted to him. He appears to have followed directly in the wake of Bourgery, condensing, modifying and re-arranging his text, re-assorting and appropriating the best of his lithographic illustrations, incorporating occasional passages from Fergusson, and other writers of England and America, and some original facts and observations of his own; and thus, with very little labour further than should appertain to him as translator, abbreviator and commentator, to have prepared a book, which, as we believe, however, must prove a useful one to the surgical student. Useful, because it contains much valuable matter nowhere else to be found in a collective form, as yet, at least, in the English language.

We must allude to another passage in the advertising page, before proceeding further. "It has not," observes Professor P. "been possible to enter into a discussion of the claims of different surgeons to particular processes, or to detail in full the therapeutical management of surgical affections, which would have expanded the work to an immoderate size."

Other difficulties than increase in the size of the volume may be suspected to have much to do in suppressing the claims of different surgeons to particular procedures. M. Velpeau, (and it is one of his main defects,) has himself given few or no references, in the body of his book, to the various authors from whom he has had occasion to draw his descriptions; and those who have either directly or indirectly copied him, have, of course, been obliged to follow his example. We hold it hardly sufficient to make a general acknowledgment in an advertisement, or preface, of indebtedness to a few distinguished names. Those who have done least have now and then done best, and hence the necessity of noticing them, and of acknowledging their claims more pointedly than those of the great masters of the art, whose names are familiar to all, and whose claims to originality are consequently in no great danger of suffering, even if omitted altogether by systematic writers. Besides, a compiler, in this respect, should consult the convenience of his readers, who are often in need of referring to original authorities for circumstantial details. This need we have many times experienced; and have more than once felt it in our perusal of the present work. The why, when and where of an operation, are often of as much interest as the name of its projector, who may have been an ancient or a modern, a German, Hindoo or Tennessean, for all that we can ascertain. The French writers, as well as Professor Pancoast, in this respect, would have conferred benefit on their readers, by imitating the example of Chelius.

But several complaints have reached us of want of due acknowledgment on the part of Professor P., towards the surgeons of his own country. Seeing the sources from which his work has been mostly prepared, his want of effort to supply inadvertent omissions on the part of the French authors, and the apparent haste with which the work has been presented

to the public, many of these complaints may be readily overlooked, others we may notice as we proceed.

Probably the most striking feature of the work is its attempt to furnish a thorough course of lithographic illustrations of the operations of surgery. The execution of these plates is highly creditable to the artists as well as to the publishers, who must have incurred in preparing them no inconsiderable expense. They add greatly to the beauty and value of the book, and will be found useful in conveying lively and accurate impressions of the procedures which they are intended to illustrate. Some of them would, at first view, appear to be unnecessary, except to complete a series; the subjects which they are designed to illustrate being sufficiently clear without them. A few of these less necessary plates, as it appears to us, might have been advantageously replaced by others which Professor P. has not thought fit to have copied from Bourgery. We refer to those in which M. B. has delineated most of the modern surgical instruments. Some of the plates, again, are, perhaps, objectionable as leading the student to infer that parts almost inaccessible on the living body, may be easily approached; thereby holding out inducements to undertake operations for which comparatively few are prepared, and which none should attempt, except after the most cautious examination of the recent subject. These objections, however, apply to the original designs, and not exclusively to the present transcripts. For, on the whole, the selection with which we are here furnished, is judicious.

The body of the work is divided into four parts:—First, Elementary and Minor Operations; Second, General Operations in reference to particular tissues; Third, Special Operations upon complex organs in particular parts of the body; to which is added a fourth part, on the sartorial surgery of the day, Plastic and Subcutaneous Operations.

The *First Part*, or that on elementary and minor operations, occupying twenty-seven pages of letter press, and illustrated with seven plates, is subdivided into eleven sections. In these we have a succinct, but sufficiently full description of the division of parts by the bistoury and scissors, of the division of parts by ligature, of phlebotomy or blood-letting in general, of arteriotomy, of cauterization, potential and actual, of reunion by suture, of setons, of issues, of moxas, of acupuncturation, and of the means of preventing and arresting hemorrhage.

Part Second, or that devoted to general operations, occupying one hundred and forty-three pages, and illustrated with thirty-seven plates, is subdivided into four sections. Of these the first treats of operations upon the veins; the second, of operations upon the arteries; the third, of operations for diseases of the bones and joints; and the fourth of amputations.

Part Third, or special operations, occupying one hundred and sixty-four pages of text, and illustrated with twenty-seven plates, is subdivided into nine sections. In these we have described, operations upon the eye-ball and its accessory organs; upon the ear; upon the nose and nasal cavities; upon the mouth and its dependent structures; upon the neck; upon the thorax; upon the abdomen; upon the anus and rectum, and upon the genito-urinary organs.

The *Fourth Part*, occupying thirty-eight pages, and illustrated with nine plates, is subdivided into two sections, the one devoted to plastic operations, the other to subcutaneous operations. On many of the sub-

jects given under the foregoing enumeration, nothing very new was to be expected. Our object, on the present occasion, is not to attempt any thing like a minute analysis, but rather to convey, as far as we are able, an impartial account of the main features of the work; noting its more striking passages, pointing out what appear to us to be occasional omissions, oversights or errors; dwelling now and then on such portions as appear to be original with the author, and which, as far as we can judge, consist mostly of descriptions of operations which he has either projected or performed.

Dr. P.'s mode of describing the various classes of surgical operations, is quite as clear and systematic as that of the authors whom he has chosen as his models. Before taking up the details of the operative procedures, he lays down some general observations applicable to the occasion; with a brief but comprehensive description of the surgical anatomy of the parts involved; and occasionally, but only when necessary, a brief account of pathological changes that require surgical interference. Little or nothing is said of pharmaceutical management, or of dressing and bandaging, prior to or after operation; subjects of paramount importance, but too often excluded from what has of late been technically called operative surgery. The details of operative procedures proper, are arranged, as usual, under the names of such surgeons as have the credit of having either suggested, practised, modified or recommended them.

Part First. *Elementary and Minor Operations.*—Of this division of the work, in which the author has very closely followed Bourgery, the *first section* is occupied with an account of the *bistoury*, its history, shape, the various modes of holding it, and the different forms of incision; and with a similar account of the *scissors*;—elementary details, proper enough in a treatise or course of demonstrations, but never thought of under any other circumstances.

The *second section* is devoted to the modes of removing parts by *ligature.* Here we have described the materials of which ligatures are composed, general rules for applying them, their various modes of application, and some judicious remarks on their effects.

The *third section* commencing with general observations on *phlebotomy*, speaks in course, first, of venesection at the bend of the arm; second, at the foot; next, at the neck; then of venesection in the neighbourhood of the affected part, and of bleeding from the cephalic vein. The anatomical descriptions in this section are worthy of special attention; but we have not space for transcribing them.

In the *fourth section*, speaking of *arteriotomy*, we find the author's first attempt at originality. The merits and peculiarities of his process for opening the temporal artery, we need not stop to consider.

The *fifth section* furnishes us with a full and interesting account of the articles employed as potential *cauteries*, their uses and modes of application; and with an account of the forms and uses of the actual cautery.

In the *sixth section*, on *reunion by suture*, and in the four subsequent sections, which are sufficiently full, we find little worthy of special note. The *eleventh* or last section of this division of the work, is one of considerable importance. *Hemostatics* or the means of arresting hemorrhage, we here find divided, first, into those applicable previous to operations; second, those employed during operations, and third, those that are called for afterwards. Under the first head we have compression by the hand,

with or without the aid of pad or compress; and next compression by instruments alone. Of these the first and oldest next to the simple bandage, is the *garot.*

"This was devised by Morel, in 1674, as a substitute for the circular bandages or ligatures employed previous to that period, for the purpose of arresting hemorrhage. As first used it consisted merely of a band or handkerchief twisted tight with a stick. This simple contrivance, from the convenience of its application in the field of battle, received the name of *field tourniquet.* The garot, as it has been latterly modified, consists of a pad to be placed on the skin above the artery, and which presents on its free surface a ring for the passage of the web or strap."—P. 92.

The account given by Dionis of the *wrench* or garot, is, that it was invented about thirty years before his time, at the seige of Besançon, by an army surgeon. It is called, says he, a *tourniguer*, because that, by turning the two little sticks run betwixt the arm and the ligature made of tape, we draw it as hard as we please. (*Dionis*, p. 388.)

The detached pad of Charrière, a useful instrument, recently introduced for compressing superficial vessels, is thus described:—

"The pad is attached to a plate, and resembles somewhat the lower frame of the French tourniquet, and is forced down over the artery by fastening the two ends of the strap after they have passed round the limb, upon the rows of buckle teeth with which its raised lateral margins are provided."—P. 29.

In speaking of venous hemorrhage during operations, our author, after accounting for its continuance, and describing several means of arresting it, goes on to say, that,

"As a last resort, each vein may be tied as an artery, though this measure is always attended with more or less risk of phlebitis. The same plans are to be pursued for the purpose of arresting bleeding from the veins after operations."—P. 33.

As a comment upon this passage, which we entirely approve, we may remark, that, after no inconsiderable observation, we do not remember to have seen phlebitis ensue simply as the result of applying a ligature to a *healthy* vein, although we have seen it follow an abrasion of the vein, made in attempting to secure the accompanying artery. The danger of phlebitis from the application of ligatures to veins after amputation, is probably not so great as we have been led to believe by the numerous catastrophes following their application to varices. The great danger of interfering with varicose veins, without reference to the particular modes of attacking them, depends upon the fact, that these vessels are already in a disordered condition, often in a state of chronic inflammation. To place a thread upon a diseased vein is quite a different and much more serious operation than to apply it on a healthy vessel.

In speaking of the means of arresting hemorrhage after operations, Dr. P. lays down some directions, which, to us, appear open to criticism.

"In parts which are inflamed the structure of the artery is sometimes found so soft as to cut across in the closing of the knot. The *mediate* ligature, as it is called, is then to be applied in the following manner: a thread is to be armed with a curved needle at each end; one of these needles is passed in a semicircle through the tissues at a little distance from the artery, and the second in a similar manner on the other side of the vessel, coming out near the point where the first entered. The thread thus passed is to be tied on the parts which it embraces," &c.—P. 34.

The course of procedure here recommended is, to say the least, rarely called for—we might venture to say, never. We cannot see the necessity for applying a ligature upon an inflamed artery at all. For arresting spontaneous arterial hemorrhage the ligature should be placed above the diseased portion, and the same remark holds good in the management of aneurisms. Again, says Dr. P.,

"Occasionally we find the larger artery, after amputation, so ossified in its structure as not to close without crushing under the loop. Under such circumstances I have succeeded satisfactorily by plugging the orifice with a piece of linen compress, and tying the vessel over it; when the ligature becomes detached it will bring away the plug. Professor Mütter has succeeded in nearly a similar way, by plugging the orifice with a portion of muscle from the detached limb." —P. 34.

The outer or cellular coat of an artery, as we take it, is rarely the seat of ossific deposits; and as it is by the compression of this coat mainly that the ligature operates in arresting hemorrhage in healthy vessels, we do not see the policy of the foregoing directions when the vessel is ossified. The danger of secondary hemorrhage after applying ligatures to ossified arteries is not so much from the sudden laceration of their coats as from their disposition to subsequent inflammation and erosion. The plug inserted into the orifice of the diseased artery is surely not the most likely means of guarding against such accidents. As to the choice between the plug of linen and the plug of muscle from the detached limb, we confess our preference, if forced to use either, would be in favour of the former. The detached muscle, strictured and compressed by a ligature, must go on to speedy decomposition; and, in decomposing, become a source of irritation to the living tissues. Placed within an inflamed or ossified artery, as it appears to us, it would rather favour than prevent the occurrence of secondary hemorrhage.

Part Second. *General Operations, or those practised with reference to one or more particular tissues.*—The *first section* of this division is occupied with *operations upon the veins*, exclusive of venesection and of hemostatic measures, both of which have been already noticed. Dr. P. speaks first of transfusion of blood, and subsequently of varicose veins.

In our first reading we had marked a few passages under this latter head as calling for criticism. But, in turning to the volomes of Bourgery, we find that certain omissions, and a somewhat confused repetition of processes, that are not very distinct, are the fault of the latter rather than of Dr. P. The same examination also exculpates him, in our view, from having failed to notice a mode of treating varices, which was first noticed in an article on varices, published in the number of this Journal for January, 1843. (See p. 57, case 17th.) To this, however, we cannot allude further at present, than to remark, that this modified way of applying pressure, if carefully followed out, and continued in from six to twelve weeks, will often succeed in effecting a permanent cure, and will always afford relief. The pressure should be as great as the patient can bear without interrupting the circulation, and kept so through the whole course of treatment, the patient in the mean time walking about.

The *second section* of this division of the work, occupying much greater space than either of the foregoing, is devoted to *Operations upon the Arteries.* After some general observations on the circumstances calling for this use of the ligature, and on the various stages of the operation, Dr. P.

proceeds to the mode of securing particular vessels. By way of illustrating the usual manner in which the several arteries are spoken of, we venture upon the following example, as the first in order, and among the briefest.

"*Of the Arteria Innominata.—Surgical Anatomy.*—The arteria innominata is, after the aorta and pulmonary arteries, the largest arterial trunk in the body. It is given off from the top of the arch of the aorta to the left of the middle part of the upper bone of the sternum, and a little more than half an inch from its upper margin. It passes from this place obliquely upwards and outwards, to a point immediately behind the sterno-clavicular articulation of the right side, at the upper margin of which it divides into the right primitive carotid and right subclavian. In its route it traverses the superior thoracic fascia of Cooper, (which is an important means of protection to the cavity of the chest,) about four lines below its place of bifurcation. The trunk of this vessel is usually found from an inch and a quarter to an inch and a half long. Its diameter in a well-developed adult is about half an inch. The place of its division is deep behind the sternum, from half an inch to three inches from the inner surface of the top of that bone. In front, the vessel is separated from the sterno-hyoid and thyroid muscles by loose cellular tissue, in which are lodged many of the inferior thyroid veins, that discharge into the left subclavian. Between these and the bone lies one part of great importance, the transverse vein, (left vena innominata,) which passes over from the left to the right side, but so near the root of the vessel, however, as to be out of the way of the operation.

"When the head is thrown forcibly backwards, and to the left side, the arteria innominata is drawn upwards, so that its point of bifurcation, as seen in Plate 8, fig. 1, is considerably above the sterno-clavicular articulation. *Posteriorly*, it crosses obliquely the root of the trachea. On its *inner* face is the left carotid, and in this angle of divergence, between the two vessels, projects the trachea. *Externally*, it rests for the greater part of its course upon the pleura covering the upper surface of the right lung. The right subclavian, and right jugular vein, and the common trunk they form, as well as the pneumogastric nerve, are placed so much on the outer side of the artery, at the point where it is tied, as not to be endangered in the operation, unless the surgeon errs by hunting too far outwards for the vessel, which, it is to be recollected, is lodged between the right margin of the trachea and the right sterno-clavicular articulation, immediately behind the sternal origin of the sterno-cleido-mastoid.

"*Anomalies.*—This great trunk is but rarely seen to deviate from the usual description. It occasionally, however, varies in regard to its direction and length, and has been found altogether wanting. I have in my cabinet several specimens of transposition of the great vessels coming off from the arch of the aorta. In one, the right subclavian originates on the left side, and crosses to the right, between the trachea and œsophagus. In another, having the same origin, it passes behind both these tubes. In a third, the two carotids spring from a common trunk, &c.

"*Anastomosis.*—Spontaneous aneurism of the arteria innominata itself has many times been met with, and instances have been noted by two observers, where it was found with one or both of the branches that arise from it obliterated after death. The anastomosing branches that may restore, under such circumstances, the circulation to the right side of the head and neck, are the branches of the left vertebral and carotid; and the thyroid, cervical, intercostal and internal mammary of the two sides, anastomose together so as to be able to return the blood to the right arm by the way of the supra and sub-scapula, external thoracic and circumflex vessels. The fact of its accidental obliteration serves in a measure to show the *possibility* of a successful result in the case of its being tied. The honour of having first peformed this most serious operation is due to Professor Mott, of the University of the city of New York.

"*Operation.—Process of Mott.*—(Plate 8, fig. 1.)—The patient is placed in the recumbent position, with the neck slightly flexed and supported with a pillow,

and the face turned to the opposite side in order to relax the sterno-cleido-mastoid muscle. The surgeon, standing upon the right of the patient, makes a transverse incision of three inches in length, commencing at the median line of the neck, and extending outwards parallel with, but half an inch above the upper border of the clavicle. Another incision of the same length is made along the internal border of the sterno cleido-mastoid, terminating at the commencement of the first. The platysma muscle and the superficial fascia are next carefully opened so as to expose the sternal portion of the sterno-cleido-mastoid, which is to be divided in the grooved director previously passed behind it. The inner two-thirds of the clavicular origin of the muscle is (are) to be cut in a similar manner; the muscle is then to he reversed upwards and outwards, as seen in Plate 8. The sterno-hyoid and thyroid muscles are now to be divided, after having been cautiously raised on the director. The surgeon then opens with the finger or the director the cellular tissue in the direction of the vessel, carefully avoiding the right internal jugular vein, which is found a quarter of an inch to its outer side, and the inferior thyroid veins, which usually cover it in front, and are to be drawn off laterally. The finger falls first upon the primitive carotid near its root. The surgeon turns this vessel downward, and cautiously tears the cellular tissue till the innominata is exposed. The vessel in question being now discovered, it is to be separated in its outer or right margin from the vena innominata of the same side, with the end of the director, and then pressing off lightly from it the vein and the recurrent-laryngeal nerve, the ligature is carried with a curved aneurismal needle from without inwards around the vessel.

"In operations upon the subject, I have found it more convenient to make the longitudinal incision first, as the skin becomes relaxed after the transverse one is made. Before attempting to pass the ligature, I find it best to raise with the forceps and divide in the front of the vessel a dense cellular layer, which is an extension downwards of the deep-seated fascia of the neck. Professor Mott secured the vessel with the ordinary silk ligature.

"Several other processes have been devised for the ligature of this artery. Græfe, who followed Dr. Mott in the operation, made only a longitudinal incision along the inner side of the sterno-cleido-mastoid, and partly with his finger and partly with the handle of the scalpel, separated the parts down to the carotid near its place of origin. Following this vessel, he reached the innominata, which he detached behind the upper part of the sternum from its sheath, so as to get his finger around it. M. Mance directs only the transverse incision to be made, and through that proceeds to isolate the vessel.

"*Process of King.*—This as last modified consists of an oblique incision, carried inwards and upwards from the right sterno-clavicular articulation over the supra-sternal fossa, to the left sterno-cleido-mastoid muscle, the surgeon standing on the left side. The artery is to be sought for between the trachea and the sterno-thyroid muscles, and surrounded with a ligature passed from without inwards. This process, though brilliant in its execution in the dead body, must he attended with great difficulty in its application to the living, from the contraction of muscles and the effusion of blood in so narrow a wound. That of Mott is to be preferred to all, as the most judicious in its plan, and likely to be most successful, as leaving less to hazard in the delicate manipolations required. In each of the several instances in which the operation has as yet been performed, the patient sunk from hemorrhage between the periods of nineteen and sixty days; and it is yet a question whether the great size and depth of the artery, its proximity to the heart and probable pathological condition in aneurisms of the carotid and subclavian, do not present such difficulties in regard to the formation of a clot in the side next the heart by the time the ligature separates, as to offer insurmountable obstacles to its successful performance. In Manec's experiments upon the inferior animals, in which the effusion of coagulable lymph takes place with greater facility than in man, the safe obliteration of the vessel, even when previously healthy, occurred but twice in four times. Still, circumstances may arise to justify its performance, especially when it is considered that the only alternatives presented are little to be relied on, viz., the securing

of the subclavian or carotid in the distal side of the tumoor after the methods of Brasdor and Wardrop, or the uncertain process of Valsalva."—P. 42-3.

Dr. P. has not furnished, as by a little research he might have done, any account of the several attempts that have been made to secure the innominata since the date of Dr. Mott's operation, with the exception of his allusion to Græfe's case. Some of these, it is true, have not been published; but all, or most of them, are sufficiently well known to practical surgeons. Taken in connection, they furnish a most useful and admonitory lesson to those meddlesome operators who hold that a precedent of a distinguished name is forever afterwards sufficient to warrant them in any thing they may attempt.

We shall not follow Professor Pancoast very closely through the remainder of this important section on the modes of securing the main arteries of the body; but content ourselves by offering a remark or two on a few detached passages. And first, in speaking of the different needles for passing the ligature, he appears to have forgotten the claims of his fellow-townsmen, Drs. Hartshorne and Parrish, to an instrument which has sometimes been called the American aneurismal needle, and which some of the European writers improperly attribute to Dr. Mutt. One or two other instruments more recently introduced for passing ligatures, might also have been noticed.

In speaking of the free anastomosis of the carotid arteries and the rapidity with which the circulation is restored to either of these vessels after ligature, Dr. P. observes, that

"It is for this reason that ligature of the carotid is now so commonly abandoned in the treatment of erectile tumours seated on the branches of that vessel."—P. 45.

The foregoing is the first intimation we have had of the sudden change in the views of the profession in reference to the treatment of erectile tumours by cutting off their supply of blood. It is only a few months since we witnessed, at the N. York Hospital, a most formidable disease of the sort in an infant only six months old, involving the forehead, eyelid, lips and other parts on the left side of the face, effectually overcome, and gradually subside by a sort of sloughing and ulcerative process, after the application of a ligature to the left common carotid, by Dr. J. K. Rodgers. We do not hold that this mode of treatment, which was instituted by Pelletan, and has proved successful in the hands of Travers, Dalrymple and numerous other surgeons, will always succeed. But if we now recollect rightly, it has oftener succeeded where the disease was seated among the ramifications of the carotid artery, and where this vessel was consequently the seat of operation, than under other circumstances. The remark which we have above quoted is more applicable to carcinomatous than to erectile tumours. The former have occasionally been attacked in this way. But their parasitic organization renders them less immediately dependent than the others on the state of the circulation in healthy tissues among which they are situated; and, hence, the attempt to cure them by cutting off their supply of blood, has generally proved unsuccessful. Dr. P. has here evidently been misled by a term employed by Bourgery. *Erectile tumours* should not be looked upon as equivalent to "*tumeurs sanguines.*" The latter includes fungus hematodes and other carcinomatous growths as well as erectile tumours.

The proximity of the internal jugular to the carotid exposes the former to occasional injury in attempts to secure the artery.

"If the internal jugular vein should by accident be opened, a casualty which has sometimes happened, it should be seized at once with the thumb and finger; a couple of fine pins are then to be passed through the edges and across the orifice, and a delicate silk ligature tied below so as to embrace the opening; the pins may then be withdrawn."—P. 47.

It strikes us that such a procedure would be exceedingly liable to be followed by secondary hemorrhage. We would much prefer either resorting to simple pressure, or to a ligature placed completely around the vessel, as in the case of Mr. Simmons, of Manchester, mentioned in connection with the foregoing passage—and in a case which occurred a few years since in the practice of Dr. Vaché, of N. York. In the latter instance, the patient, a child five or six years old, subsequent to an attack of scarlatina, was seized with gangrenous inflammation, which destroyed the greater part of the soft tissues on the side of the neck, and at length reaching the deep jugular vein at its upper part, led to sudden and alarming hemorrhage. Dr. V. applied a ligature around the vessel just at the point where it emerges from the skull. The hemorrhage was checked; the ligature came away with the dressings, on the third day; and the child rapidly recovered.

Dr. Pancoast, in this section of his work, gives several processes for securing blood-vessels, of which he claims to be the projector. Among these are his process for taking up the lingual artery, which, however, he appears never to have practised upon the living subject; his operation, once practised, upon the posterior auris; his operation upon the temporal, "perfectly successful in several instances;" upon the axillary, which for years he "has been in the habit of exhibiting to his class;" upon the anterior intercostal in the forearm, as yet simply projected; and perhaps one or two others. The merits and peculiarities of these several operative procedures, some of which appear to be worthy of attention, we cannot now stop to discuss.

"In cases of popliteal aneurism," says Dr. P., "the great freedom of anastomoses between the upper part of the thigh and the ham, has frequently caused a return of pulsation in the tumour before its contents have been absorbed without interrupting the cure; though in some cases, to render it complete, it has been found necessary to employ, in addition, pressure upon the surface of the tumour."—P. 75.

In connection with this passage we would remark, that ligature of the femural, for the cure of popliteal aneurism, in order to be effectual, does not necessarily require a total arrest of circulation in the vessel at the ham. In one instance we have known the aneurismal tumour, at the popliteal space, that had apparently been cured by ligature of the femoral, return suddenly after an interval of a year, and again disappear on the application of a ligature to the same vessel above the profunda.

Before leaving the subject of the arteries, we would remark that we have met with a few verbal inaccuracies, probably from inadvertency in proof reading, which might mislead the student, and which, therefore, require notice. Thus, Dr. P., at p. 79, makes the extensor pollicis pedis muscle, as it passes downward, cross *behind* instead of in front of the anterior tibial artery; and places the tibialis anticus muscle in the middle of

the leg, on the *outer* instead of the inner side of the same vessel. In the descriptinn of plate xiv., left side, at page 70, he calls the *external* iliac artery the *internal*

The next, or *third section*, is occupied with *Operations for Diseases of the Bones and Joints*, under which we have, 1st, those for drnpsy of the joints; 2d, for the removal of foreign bodies from the joints; 3d, for ganglions, &c.; 4th, for dropsical tumours of the bursæ; 5th, for complicated fractures and luxations; 6th, for false joints; 7th, for deformities from irregular union of broken bones; 8th, for exostosis; 9th, for bony cysts; 10th, for necrosis; 11th, for trepanning; and 12th, for resection of bones. We can touch only upon a few of these subjects.

In treating of *articular effusions*, Dr. P. speaks of tapping either with the bistoury or trocar, of mucilaginous injections, and of injections of iodine after the methnd of Mr. Martin, but says nothing of a practice which not long since had considerable repute, especially in New England, and which, we believe, was original with the late Professor Hubbard, of New Haven. In a manuscript account of his practice, which we happen to have in our possession, he thus speaks of it under the date of June 5th, 1837.

"*Serous effusions in consequence of inflammation of the joints.*—In such cases, whether arising from external injury or not, especially when absorption could not be produced by external remedies, I have made a puncture into the bursæ and discharged the serous fluid. The fluid usually collects again. In two days I probe open the orifice and discharge what may be collected, usually a small quantity. I then inject a solution of corrosive sublimate, (grs. x to a pint,) keeping the injection in a few minutes, then pressing it out. Considerablo pain and irritation often follow. Opium soon relieves these, however. Three days afterwards I probe open the orifice again; and if the serous fluid continues to be discharged, I inject again. I would remark that I open the orifice every day after the injection. At first the discharge is considerable, semi-purulent. In three days it again becomes serous. I have never been obliged to inject more than two or three times, and three or four days apart. One injection often suffices; and, at the end of three days, I find adhesion has taken place. I have treated serous effusions of bursæ not connected with joints in the same manner, and with good success. I have been surprised that, in the affection called, in Great Britain, House-maid's Knee, extirpation, and, in some instances, re-extirpation has been practised. I have never failed to cure it in the mode just mentioned."

In suppuration of the joints, and in some instances after effusion of blood in these cavities, he speaks of having succèssfully resorted to the same practice. We do not undertake to vouch for the merits of the treatment as applied to the joints, having never resorted to it ourselves; although, as long ago as 1833, we had employed the same solution successfully in the treatment of psoas abscess. It appears to us, however, quite as worthy of a trial in treating diseases of the joints as the iodine solutions; and its author, Dr. Hubbard, formerly Professor of Surgery in Yale College, quite as worthy of mention in connection with the practice as Mr. Martin for his iodine injections.

In speaking of the removal of foreign bodies or *movable cartilages* from the joints, our author appears to give the preference to the subcutaneous incision first devised by M. Goyraud, and more recently recommended by Mr. Liston. Now, of the ten or twelve instances in which we have seen movable cartilages taken from the joints by simple incision,

the only case followed by serious symptoms was one in which a minute vessel had been divided, from which blood escaped into the joint subsequent to the operation. We cannot see how the subcutaneous incision is to obviate such accidents, or to render them less serious. And the difficulty of removing the cartilage from the cavity of the joint by a subcutaneous incision is acknowledged to be very great, even by those who have adopted and recommended the practice.

In accordance with Bourgery, Dr. P. states, that there are three methods of remedying the inconveniences resulting from the solidification of the joint, which constitutes *true anchylosis.*

1. "To re-establish the movements of the joints by rupturing the adventitious junction between the bones.
2. "To establish a new point of motion by the creation of a false joint.
3. "To place the limb in a new position by taking out a wedge-shaped portion of bone, when it is anchylosed in a direction that renders it inconvenient or useless."—P. 88.

To these he might have added a fourth, viz.: To bring the contracted or deformed limb into a useful position by gentle and protracted pressure. We have witnessed at least two instances in which the leg, anchylosed nearly at right angles with the thigh, has, after several months, treatment in this way, been gradually straightened; not by any yielding of the anchylosed joint, but by the bending of the tibia below it, the bone yielding at the point of union between its shaft and its upper articular extremity. These instances were in growing boys of strumous diathesis.

In speaking of the treatment of *false joints*, Dr. P. appears, as in many other instances, to follow his French guide, and, in consequence, to give credit for modes of practice to foreigners which belong to the surgeons of his own country.

"M. Flaubert, of Rouen, has proposed, after resection, to unite the ends of the bones by passing a wire in the manner of a suture through the fragments themselves."—P. 94.

The foregoing statement is made by both Malgaigne and Bourgery. The former makes no mention of it in the earlier editions of his manual; but, in the edition for 1840, he speaks of it as a practice *just introduced* by M. Flaubert. Now, had Dr. P. consulted the New York Journal of Med. & Surg., Vol. I., for Oct., 1839, he would have there found an exposition of this mode of treatment, as for many years in common use in the New York Hospital, and first practised there by Dr. J. K. Rodgers, in July, 1826. There is no doubt that the practice which Dr. P. has credited to the French surgeon was suggested by Dr. Heard's paper on this subject to which we have just referred. When are we to receive our own from such authors?

In speaking of *Excision of the Upper Jaw*, Dr. Pancoast makes a remark which appears to require some qualification.

"The great improvement of modern surgery, in reference to the malignant growths of the upper maxillary bone, consists in its amputation entire at its points of articulation, instead of attempting to cut out with saws, forceps and gouges, the diseased mass alone."—P. 108.

The truth of the foregoing observation is not to be questioned, where the greater part of the bone is affected, or when the disease appears to have attacked it at several distinct points. But there are many cases in

which the malignant action is circumscribed within a very limited space; and in such it would, as appears to us, be cruel to attempt the removal of the whole of the upper jaw. Dr. P. might very properly have introduced a paragraph on *partial resections* of the upper jaw, and have accredited Dr. A. H. Stevens, of New York, for his well-known operation for removing the greater part of this bone, which was performed in 1823, in a case of what was supposed to be malignant disease. His patient, then a child, is now a member of the New York bar. Dr. P., however, has alluded to the case, in connection with operations upon the maxillary sinus, where it appears to have been taken from an article on Tumours of the Nasal Fossæ, which was published in the number of this Journal for April, 1842.

"The resection of the lower jaw, either in whole or in part," says Dr. P., "is an easier and much less formidable operation than that of the upper."—P. 112.

This assertion is by no means in accordance with our own experience. Few operations of equal magnitude and severity are performed with greater facility or with greater rapidity than Gensoul's operation for extirpating the upper jaw. In the two instances in which we have had occasion to assist in this operation, it was accomplished in a few moments, and the only vessel requiring ligature was the internal maxillary, which was seized with the fingers and secured, after the removal of the bone, without the aid of either forceps or tenaculum. The *operation upon the lower jaw* is always more tedious, attended with greater hemorrhage, and even with greater danger, especially where the operation involves the symphysis of the bone. In one instance, in the hands of a most skilful surgeon of New York, the patient, under these circumstances, died immediately after the operation, and before the surgeon had left the room, and, as we are told, apparently from closure of the glottis, by the sudden recession of the muscles of the tongue, &c., after separating them from their attachment at the symphysis of the lower jaw. Dr. P. himself has had occasion to notice, in his book, other similar catastrophes.

A serious inconvenience, in the eyes of some surgeons, after partial resections of the lower jaw, is the subsequent torsion of the chin.

"To prevent the falling of the sides of the bones inwards, Mr. Nasmyth, of Edinburgh, has devised an ingenious little instrument, a double silver case, to contain the upper and lower molar teeth, which should be made to fit on previous to the operation."—P. 113.

In a case of removal of a portion of the lower jaw, for an osteo-sarcomatous tumour, related in the N. Y. Journ. of Med. and Surg., vol. iii, for 1840, p. 357, the chin afterwards inclined slightly to one side. But on examining the patient some eighteen months or two years afterwards, it was found that the deformity had entirely disappeared. The divided ends had become firmly bound together by an intervening substance, nearly as solid and inelastic as the bone itself.

The success attending operations for *partial resection of the vertebræ*, as Dr. P. well observes, "is always doubtful," more so, however, in consequence of previous injury requiring such operation than from injury necessarily inflicted by the operation itself.

"Jæger relates six instances in which it has been done, but in two only of these with advantage. In four well-known cases, those of Cline, Tyrrel, Barton and A. G. Smith, the operation did not eventuate successfully."—P. 117.

We remember to have witnessed, in the practice of M. Cusack, of Dublin, in 1836, the case of a young woman who had had the spinous process of one of the dorsal vertebræ carried away by a gun-shot. Just after the accident, as M. C. assured us, he was enabled to introduce the point of his finger through the wound into the spinal cavity. The patient, when we saw her, had so far recovered as to be able to walk about, the wound having already cicatrized.

In speaking of resection of the *tarsal bones*, Dr. P. makes no mention of a case in which Dr. A. H. Stevens extirpated the *astragalus* successfully, after a severe compound dislocation, in 1826, probably because he found no notice of it in Bourgery. Neither Velpeau nor Malgaigne refers to it. He reports a process of his own for resection of the *first metatarso-phalangeal articulation*. The case calling for this occurred to him in 1836. We need not repeat the operative procedure. The parts afterwards anchylosed.

"The only difficulty encountered in the after treatment was the tendency of the extensor muscle to elevate the point of the toe. Should I again have occasion to excise this joint, I would prefer to divide this tendon, in case I approximated the bones, inasmuch as the necessity for its use would be greatly diminished afterwards."—P. 132.

The next or *fourth section*, occupying between forty and fifty pages, is devoted to *amputations*.

These have been so admirably systematized of late, particularly by Lisfranc and a few others, and so well described by most writers on the subject, as to have left but little room for originality. The only mode of amputation claimed as original by Dr. P., is one of amputation *at the knee joint*, described in the following quotation. The case calling for it was one of necrosis of the tibia, in a female of middle age. Cicatrization was complete at the close of the fourth week.

"*Process of the author. Three cutaneous flaps.* (Pl. xlii. figs. 2, 3, 4.)—The patient is to be placed upon the abdomen. The leg, flexed at a right angle with the thigh, is held by an assistant. The sorgeon, placing the thumb and forefinger upon the condyles of the tibia at the opposite side of the leg, makes, with a common scalpel on the front of the upper part of the leg, a semilunar incision which extends as far as three inches below the tubercle of the tibia—one extremity resting on either side an inch below the joint. The flap of skin is now to be rapidly dissected towards the joint. The leg is then to be extended and made horizontal. The point of the knife is next to be entered through the skin, at the middle of the back part of the leg, an inch and a half or two inches below the fossa of the popliteal space, and carried vertically downward for the space of three inches. From the lower end of this, the knife is to be continued round on one side, to strike the line of the first or anterior incision, so as to mark out a second flap, convex downwards, and extending a little lower than that of the one in front. The lower end of the vertical cut is then united, by a similar convex sweep of the knife to the other margin of the first incision, so as to form a third flap. The two posterior flaps are next to be dissected from the fascia up to their base. The leg is now to be again flexed, and from the general loosening of the flaps already made, the insertion of the ligamentum patellæ upon the tibia will be exposed. This is to be divided across, and the joint opened upon the front and sides, so as to leave the semilunar cartilage on the head of the tibia, the crucial ligaments, as they become subsequently useful as a nidus for granulations, are to be divided at their connection with the latter bone, and the posterior ligament lastly cut. The leg, which is now loose, is to be twisted on the thigh. An assistant grasps the popliteal artery with the thumb and finger,

and the sorgeon divides helow, at one stroke with the knife, the remaining parts, consisting mainly of the two heads of the gastrocnemius, some of the hamstring tendons not previously cut, and the popliteal vessels and nerves. The patella is to be left in its position.

"The whole operation may he done with the scalpel; the femoral artery should he compressed with the tourniquet.

"*Dressing.*—The anterior flap is to be brooght over so as to cover the condyles, and united hy snture to the two lateral flaps, which will be found so considerahly retracted as to fit in neatly to each other along the notch between the condyles. A few strips of adhesive plaster are to he applied, and a roller hrought down from the opper part of the thigh, in order to overcome the teodency of the loosened muscles to retraction, and fix the patella near to the end of the hone."—P. 169.

Owing to the shortness of the flap, in the operation above described, one of the condyles became exposed, and furnished Dr. P. an opportunity of studying the changes that take place in the articular cartilage after amputation at the joint.

"This structure neither reddened nor became painful, so as to exhibit any coating of synovial membrane, or other appearance of organization. It became, hy the end of a week, softened and pulpy on its free surface, in the same manner as occurs when the joint is subjected to the macerating tuh of the anatomist. The pulpy layer, which was so soft as to leave a track when rubbed with the end of a probe, was insensibly removed with the discharges; hy a continuation of the same process of softeoing and removal, the thin lamina of bone covering the auricular face of the condyles was completely bared of the cartilage in the third week."—P. 169.

In speaking of amputation at the hip joint, Dr. P. has made no allusion to the case of Dr. Mott, which, if not the first successful one, was the first in America.

Before leaving the consideration of the bones, we may remark another oversight on the part of Dr. P., or his prototypes, in failing to notice the practice of the late Dr. N. Smith, of New Haven, in the treatment of internal suppuration of the bones by trepanning; and, we might add, Mr. Liston's mode of treating nodes, by a free subcutaneous division of the periosteum. This latter practice we have employed somewhat extensively, and can speak of it most favourably.

Part Third. *Special Operations, or those which are practised upon complex organs in particular regions of the body.* The *first section* under this general division, occupying about forty-five pages, treats of *operations upon the eyeball and its accessory organs.* These operations are arranged into four groups: 1. Those for affections of the lachrymal apparatus; 2. Those for the protecting organs of the eye; 3. Those for the ball of the eye; and 4. Those involving the orbit and parts within not specified above. Our observations on the mass of interesting details included in this section must be somewhat brief.

Speaking of *lachrymal fistula*, and of the various modes of treating it, Dr. P. gives the following appreciation of the relative merits of Ware's style, and the canula of Dupuytren.

"The comparative merits of the two instruments have not yet, perhaps, heen fully decided. With the tube the operation is rapid, but little painful, and at once finished. There is no deformity left, and though there is some risk of the contrary, it may be followed with no further trouble or inconvenience. The tube is not, however, suited to cases where there is much thickening or ulceration of the sack, as the parts will not, under these circumstances, close above it. With the style there is a mark of observation left upon the cheek; the core may

be less complete or followed even with a fistulous ulcer of the sack, but the operation is unattended with risk, and the instrument is always under the control of the surgeon—a circumstance which weighs strongly in its favour with the profession. Mr. Travers, who asserts that he has introduced the tube fifty times with excellent success, without having been required to move it in more than two instances, nevertheless, for reasons analogous to the above, gives preference to the mode of cure by the style."—P. 187.

The removal of the tube, after having remained for a length of time impacted in the nasal duct, is occasionally an operation of exceeding difficulty. In one instance which came under our observation, in which a gentleman had worn the tube about a year, wishing to get rid of the distress which it occasioned, an attempt was made to extract it. But the surgeon, after the most patient and persevering efforts, continued for at least one hour and a half, and after inflicting much unavoidable suffering on the patient, was finally obliged to abandon the case.

In treating of ectropion, Dr. P. appears to think favourably of the attempt to cure it by excision of a V shaped piece extending through the whole thickness of the lid. In the few cases where we have seen this attempted, the edges of the wound, although properly drawn together by suture, did not unite; and the deformity consequent to the operation was worse than the original.

In speaking of artificial pupils, Dr. P., in reference to the method by "extension of the natural pupil," says, "This is a process devised by Langenbeck, in cases where the pupil is in its natural condition, and the rays of light are intercepted by a central opacity of the cornea. It consists in puncturing the cornea as in the process just described, introducing a hook and drawing one edge of the pupil aside, so as to leave it strangulated in the wound of the elastic cornea, to which it soon becomes firmly connected by adhesive inflammation. By this means a circular orifice of the pupil is changed into an ellipsoid, and brought under a transparent portion of the cornea." In attributing the original conception of this operation to Langenbeck, Dr. P. seems to have followed Bourgery, who observes:—"Créé par M. Langenbeck pour un cas où la pupille normale était intereeptée par une tache centrale de la cornée, cette méthode [extension de la pupille naturelle], n'est rien autre chose qu'une application au bord pupillaire du procédé qu'il avait ajouté au décollement. Elle consiste à amener par tiraillement, dans une petite ouverture faite à la cornée, un des points de la circonférence pupillaire de l'iris. Par ce moyen on obtient une extension ou un déplacement de la pupille naturelle, la traction changeant la forme de son orifice de circulaire en ellipsoide." M. B. gives, however, no reference by which this statement can be verified; and we suspect that had Dr. P. taken the trouble to investigate this claim, he would have found that the merit of first devising the operation cannot be awarded to Langenbeck. The subject is not, however, of sufficient importance for us to detain the reader with the history of this operation, for which the materials are before us.

Dr. P., under the same head, describes a process of his own, the object of which, says he, "is to get a good-sized aperture in the iris without injuring, in the least, the lens, the capsule, or the outer attachment of the iris." The following is the author's own exposition of it.

"This is accomplished, first, in dividing the radiating fibres of the iris near their ciliary margin, by a crescentic incision made at the same time with the

puncture of the cornea; and, secondly, by extending the anterior cut from the middle of the incision of the iris to the centre of the old pupil, dividing not only the iris, but the new membrane which has closed the pupillary orifice. These incisions will have this shape (—. The first one is made with the extraction knife of Wenzel.

"The patient is to be seated in a chair under a good light, as described at page 200. The upper lid is raised by an assistant. The surgeon seated in front, depresses the inferior lid, and taking the knife in his other hand, enters the point *through the cornea at the usual place of extraction*, as soon as it is seen in the anterior chamber, the point, by bringing the handle forwards, is directed obliquely backwards upon the iris, so as to pierce it about half a line from its ciliary margin,—for, at this place, the thin edge of the lens is so far removed from the iris as to prevent its being wounded. As soon as the puncture in the iris is made, the handle is carried backward, so as to bulge the iris a little forward with the point; the knife is then carried on, dividing the iris and cornea till the point of the instrument is advanced half-way between the place of puncture of the iris and the closed pupil. The knife is then to be carefully withdrawn. If this step of the operation be neatly executed, none of the aqueous humour will escape till after the removal of the knife, and then but in a very small quantity. The incision of the cornea will be less than a fifth of its circumference, and that of the iris will have a shape concentric with its outer margin.

"The delicate probe-pointed scissors of Maunoir are then to be inserted, closed, flatwise through the lips of the corneal wound. As soon as they have entered the anterior chamber the blades are to be slightly opened, and the handles turned so as to look obliquely downwards and forwards, in order that the blade next the cornea may not injure this structure. One blade is to be carried through the puncture of the iris, behind that membrane, and the other in front, as far at least as the centre of the old pupil; the handles are then brought directly horizontal, and the second incision made by closing the scissors. If the iris is healthy and unadherent, the operation is now completed. Not a drop of blood will have escaped; a beautiful artificial pupil will be at once formed. The base of the radiating fibres belonging to the outer part of the iris having been cut, the pupillary circular fibres, having now no resistance, contract and draw upon the two loosened triangles of the iris, so as to bring their edges into a straight line, and make the new pupil widest at the central position. The shape of the pupil will be such as seen at Pl. xlviii., Fig. 15. Immediate vision will be restored if the retina is in a healthy condition. The eye, however, is to be closed, and treated for a few days as after extraction, with the exception that the temples and margin of the orbit should be covered with the extract of belladonna to keep the iris dilated as widely as possible."—P. 216-17.

Closure of the pupil, without any opacity of the capsule or adhesion between it and the iris is of extremely rare occurrence. Still, as such a condition may present itself, and it is highly important, when it does, to preserve the capsule and lens uninjured, it may be worth while to inquire how far Dr. P.'s operation is calculated to answer its design. The risk (not to say certainty) of wounding the capsule of the lens in any attempt to pass a knife through the iris, has been considered so great that the best ophthalmic surgeons reprobate any such attempt. Dr. Mackenzie says it would be evidently wrong to have recourse to the operation of *incision*, (Pract. Treatise, 2d ed., p. 734,) and recommends lateral *excision*, in such cases. This is practised by making an incision of the cornea, then pressing on the eyeball so as to cause a prolapse of the iris, and finally excising with scissors the prolapsed part. This, which is the operation of Gibson, and has been performed by Beer and De Walther, with some slight difference in the operative details, has been generally considered as best adapted

to the case under consideration, as it subjects the capsule to the least risk of injury. But Dr. P., in his operation, has recourse not only to the reprobated method of *incision*, but he makes *two incisions*, and the second one under the most unfavourable circumstances. For both chambers of the aqueous humour being opened by the first incision, (through the cornea and iris,) that fluid must at once flow out;* and the contraction of the muscles of the ball will theo bring the anterior capsule of the lens, the iris and the inner face of the cornea in complete contact. To accomplish the second incision, the points of the scissors must be forced, one between the iris and coroea, and the other between the iris and anterior capsule of the leos. Whether it is likely that this can be accomplished without wounding these parts, we leave to the reader to decide.

The new operations for *strabismus* are described at some length, and Dr. P., among others, details a process of his own; for which, however, we have not space. Under this head there is no notice of the fungous excrescences which are so apt to arise from the wound in the conjunctiva after it begins to cicatrize, and which frequently require excision; nor any allusioo to soppuration betwcen the eyeballs and its investments, consequent on the operation.

Sect. second.—The section on *the ear*, the second in this division of the work, we must pass over without much comment; observing merely that Dr. P. has *several times* performed the operation of puocturing the membrana tympani without much lasting benefit. It appears to us that the impropriety of this procedure had fairly been establisbed long before Dr. P. entered the list of operators. We look upon perseverance in such procedures as another instance of the influence of bad example, and of the tenacity with which some surgeons hold to doubtful or injurious operative measures ooce instituted by distinguished teachers, even after such teachers themselves have long ceased to speak favourably of their own practice.

In the *third section*, including *operations upon the nose and nasal cavities*, Dr. P. remarks that the septum narium "is the almost exclusive seat of fibrous polypi." This statement, if true, is new to us. According to Velpeau, the fibrous tumour has its special origin in the fibrous tissue that iovests the bones of the nasal fossæ, and that lies between the bones and the proper mucous tissue. In a case published by Dr. Mott, and noticed in a former number of this journal, the fibrous growths were attached to the floor of the nostril. We fiod nothiog in this section in reference to operations for the removal of encysted tumours, which frequently form about the alæ nasi, and in the removal of which the surgeon, unaware of their attachment, is very apt to lay open the nasal cavity, and in this way permanently deform the visage of the patient.

Dr. P. has, "on several occasions, removed by excision, carcinomatous or caruncular growths near the anterior orifice," and has generally found it afterwards necessary to plug the nostrils to arrest the hemorrhage. He also gives a peculiar mode of his own for this latter operation.

The operation for opening into the maxillary sinus, says Dr. P., "may be reqnired for dropsy or abscesses of the sinus, or in cases of the development within the cavity of polypous tumours, fungous or carcinomatons

* If a drop remains, it will, at all events, be evacuated the moment the points of the scissors, in the second step of the operation, are introduced into the incision in the cornea, as they can occupy but a portion of the wound.

tumours;" to which we may also add, for the cure of fistulous ulcers communicating with the cheek,—a troublesome instance of the latter sort that had existed a long time, we remember to have seen heal effectually and rapidly after puncturing into the sinus through the socket of one of the teeth.

In the *fourth section*, on *operations upon the mouth and its dependent structures*, Dr. P., speaking of hypertrophy of the upper lip, leaves us no room to suppose that the affection may yield to scarification and other means of local depletion; but proceeds at once to the operative measures. We would call his attention to a case of the sort published by Dr. Detmold in the N. York Journal of Medicine and the Collateral Sciences for July, 1844. Passing over the treatment of hare-lip, cancer of the lips, and anchylosis of the lower jaw, we come to the treatment of *salivary fistula*.

"The facility and success of the treatment, as well as the choice of the method for the cure of a fistula of this duct, depend much on the fact of the orifice being the result of a wound or a recent ulcer; or, if it be of long standing, whether the skin is healthy or diseased at its margin, whether the passage of the duct on the inner side of the fistula is open or closed; or, in fine, whether the fistula is situated anteriorly or posteriorly to the edge of the masseter."—P. 247.

Having paid some attention to these fistulæ, we have seen them heal spontaneously under each of the circumstances above specified. In front of the masseter, both after incisions for the removal of tumours, involving the duct, and after syphilitic ulcers of the cheek penetrating it; behind the massiter, where fistula had followed spontaneous abscess, and where the parotid had been necessarily injured in the removal of tumours in its neighbourhood. There is, then, in these fistulæ, a much greater disposition to spontaneous cure than surgical authorities are ready to admit; and unless we find the duct permanently closed between the fistula and its natural outlet, we are disposed to believe that, in most instances, the best practice would be to trust almost exclusively to the efforts of nature. The spontaneous cure after syphilitic ulceration, it is true, requires time. But we question how far, under these circumstances, the cure is to be expedited by either setons, sutures, cauteries, or other modes of local interference.

In connection with the operation for *extirpating the parotid gland*, we have an array of most of the American surgeons who have attempted it. The day has gone by any longer to question the fact that this gland has been extirpated; yet Dr. P. has done well to note the remark of that very judicious critic and observer, M. A. Berard, who states that, out of fifty-two attempts at the extirpation of this gland, in a diseased condition, not more than five can be said to have been effectual. In Professor Pattison's lecture on this subject, published in 1833, among numerous other cases, he cites four in which the gland is said to have been effectually extirpated by Dr. Bushe, of New York. One of these four cases of reputed extirpation of the parotid subsequently became a patient of the New York Hospital. The disease had probably been originally a carcinomatous degeneration of some of the lymphatic ganglions about the neck. The extirpation of what was considered the parotid did not, of course, effect a permanent cure. When the patient was admitted at the hospital the disease had nearly surrounded his neck. As a last resort, he was advised to submit to the ligature of both carotids. The operation of ligaturing both vessels, at one sitting, was performed by Dr. Mott, if we recollect rightly, in July,

1833. The patient survived only a few hours, and in the autopsic examination, the parotid gland was found in situ.

The opinion adopted by Dr. P. that "the scirrhous affection of the gland is attended by a contraction of its capsular investment, by which the deep-seated and irregular prolongations are made to recede from their beds, so as greatly to facilitate the process of extirpation," is one the correctness of which we must confess ourselves rather doubtful. If the disease has already gone so far as to produce a condensation of the capsule, we may expect, as a matter of course, that the tissues beyond this capsule are not entirely sound.

We must now hurry by what Dr. P. has to say on extirpation of the submaxillary gland, ranula, operations on the tongue, excision of the uvula, extirpation of the tonsils, and staphyloraphy, which complete the subjects embraced in the fourth section, with the passing remark that he has given processes of his own for the removal of scirrhous tumours of the tongue by a wire ligature, one for staphyloraphy, and a third for staphyloplasty.

Section fifth, including operations on the *neck*, *section sixth*, operations upon the *thorax*, and *section seventh*, operations upon the *abdomen*, offer nothing special to detain us until reaching the close of what Dr. P. has to say of abdominal dropsy; when, to our surprise, we discover that he has entirely omitted to mention the once-neglected but recently resuscitated operations for the removal of ovarian tumours. Whatever may be our own disposition to excuse him for this omission, we fear certain of his readers will not think well of it. Surely he must have been following his French leader so closely as to have, with poor Rip Van Winkle, been actually asleep to the revolutions that have been going on about him. The Cæsarian section operations for the removal of uterine polypi, and for the removal of the uterus itself, have also been omitted; but these, it may be said, belong to another department of the healing art.

In treating on hernia, Dr. P. describes, as a means of radical cure, a process of his own:—

"*By injection.*—This process, as employed by the author, is as follows:—The contents of the hernia must be completely returned into the cavity of the abdomen, for the process is only appropriate to cases of reducible hernia, and those which are not of large size. The apparatus required is a minute trocar and canula, (Pl. lvii., fig. 7,) a small graduated syringe, capable of containing a drachm of fluid, well fitted to the end of the canula, a good-fitting truss, for the porpose of making compression. The patient is to be placed on his back; the viscera are then to be reduced, and the truss applied over the external ring, for the purpose of keeping them up, as well as to prevent the possibility of the small quantity of fluid thrown in from getting into the cavity of the abdomen. The surgeon then presses the finger at the external ring, so as to displace the cord towards, and bring the pulpy end of the finger on the spine of the pubis. At the outer side of the finger he now enters, with a drilling motion, the trocar and canula, till he feels the point strike the horizontal portion of the pubis, just to the inner side of the spine of that bone. The point is then to be slightly retracted and turned upwards or downwards; the instrument is then to be further introduced till the point moves freely in all directions, showing it to be fairly lodged in the cavity of the sack. The point of the instrument should now be turned into the inguinal canal, for the purpose of scarifying freely the inner surface of the upper part of the sack, as well as that just below the internal ring. The trocar is now to be withdrawn, and the surgeon, again ascertaining that the ca-

nula has not been displaced from the cavity of the sack, throws in slowly and cautiously with the syringe, which should be held nearly vertical, half a drachm of Lugol's solution of iodine, or half a drachm of the tiocture of cantharides, which should be lodged as nearly as may be at the orifice of the external ring. The canula is now to be removed, and the operation is completed. A compress should be laid abovo the upper margin nf the external ring, pressed down firmly with the finger, and the truss slid down upon it. The patient is to be kept from changing his position during the application of the truss, and should he confined for a week or ten days tu his bed, with his thighs and thorax flexed, keeping up steadily as much pressure with the truss as can be borne without increasing the pain, in order to prevent the viscera from descending and breaking up the new adhesions while they are yet in the forming state, or avoiding the risk of their becoming strangulated, or being rendered irreducible by the lymph effused into the caviiy of the sack.

"Tho author has practised this operation in thirteen different cases, in but one of which was there any peritoneal soreness developed that excited the slightest apprehension, and in this case it subsided under the application of leeches and fomentations. In several of these cases a single operation appeared to be perfectly successful. In others—where the sack was larger, or the patient was less careful in keeping the truss steadily applied during the first week, or from a cautiousness in introducing, in the first cases, a more limited amount of fluid—the effect was merely to narrow the sack, rendering a repetition of the process necessary for the cure. Of the permanency of the cure, *during several years after the operation*, the author is unable to speak, most of the patients operated on being temporary residents of the Philadelphia Hospital, and passing, after a few months, beyond the reach of inquiry. While under the cognizance of the author, they were employed without a truss as labourers on the farm attached to the institution, and in no one of the cases, during this period, had the hernial tumour recurred. It would, however, be but a proper measure of precaution to direct the truss to be worn subsequently for several months, in order to confirm the cure.

"The greater nnmher of these operations were performed by the author eight years ago, before the classes of students at the Philadelphia Hospital, but as he was able to trace the future history of the cases but for a few months only, they were not deemed of sufficient importance for publication. Very recently M. Velpeau has published a process almost precisely the same as that just described."—P. 283.

As we have somehow or other fallen into the line of pointing out omissions, we may remark again before leaving the consideration of operations on the abdomen, that we find no allusion to an operation which Dr. Samuel White, of Hudson, has called *enterotomy*, and which he many years ago performed successfully for removing a silver teaspoon from the small intestines. (See note at page 331 in the present number of the Journal.)

Section eighth.—The operations upon the anus and rectum include those for imperforation of the anus, polypous tumours of the rectum, prolapsus ani, invagination of the rectum, cancer of the rectum, hemorrhoids, abscess at the side of the rectum, fistula, fissure, and stricture of the anus.

We cannot agree with Dr. Pancoast, in believing that in the treatment of hemorrhoidal tumours, the common ligature of silk or hempen thread is inferior to the wire ligature, nor that it is any more difficult to strangulate these swellings by means of the thread than by the wire; but agree with him in preferring a combination of ligature and excision to the simple use of ligatures. The exposition of the pathology of hemorrhoids which he adopts, is far from being in accordance with our own views of

this affection: we cannot, however, stop to discuss this point here, but may refer for an exposition of what appears to us to be the true views of the pathology and treatment of this disease, to the *N. Y. Journ. of Med. & Collat. Sci.* for July, 1844.

Section ninth.—The operations upon the genito-urinary organs embrace, first, those upon the male; among which are those upon the scrotum, upon the penis, and upon the urethra and bladder, including the operations for stone; and, secondly, those upon the female, including lithotomy, suture of the perineum, recto-vaginal fistula and vesico-vaginal fistula. This section presents but little to detain us. The author's description of the operations for hydrocele, among which he gives one of his own, appears to us to be somewhat imperfect. His modification of the subcutaneous operation, for the use of variocele, by the application of a ligature to the veins of the spermatic cord, as it appears to us, is not so free from danger and inconvenience as he supposes; nor would we, as he has done, choose it in preference to the operation of Sir A. Cooper. In the comment upon his operation, to which we refer, he remarks, that

"By keeping the cavity of the veins in the grasp of the ligature thus *constantly* closed, the risk of purulent absorption from the vein below is greatly diminished, if not entirely removed," &c.—P. 314.

We have met with other similar allusions to Velpeau's doctrine of purulent absorption, in the course of this work. So long as such views have only a speculative bearing, they are not worth combating; but where they lead to improper practice, or to false confidence in certain operative procedures, it is time they were exposed. Does Dr. P. not know that after ligaturing a varix, the vessel may suppurate as well above as below the thread? If there is in pathology any fact established by the most careful and extensive observation, we hold that the occurrence of purulent cachexia, independent of any necessary previous absorption of purulent matter, is such a fact. The character of the work before us, however, does not require of us at present to enter upon the discussion of this most important question, further than to say that it is full time that the term purulent absorption, or purulent resorption, as applied to purulent cachexia, secondary abscess, and suppurative phlebitis, was entirely suppressed.

In speaking of phimosis, Dr. P. has again furnished us with a process of his own, but which we have not room to transcribe. The other subjects spoken of in this section we must hurry over, with the remark that we find, under the head of vesico-vaginal fistula, no allusion to the ingenious process of Dr. Hayward, of Boston, an account of which was several years since published in this Journal. Is this omission chargeable on Bourgery?

Before leaving the third division of the work, treating of special operations in particular regions of the body, we must observe that, in imitation of his French models, Dr. P. has omitted to speak of any operations in the course of the spinal column, as for the removal of tumours and for the cure of spina-bifida;—another rather important oversight, especially as some of our own countrymen might have here been mentioned among the successful innovators in the field of operative surgery. We have some facts of our own on this latter subject, which we may some time hereafter take occasion to present to the profession.

Part Fourth.—*Plastic and subcutaneous operations.*—Among the operations, spoken of under this head, Dr. P. has had considerable experience. We have not room for many remarks on this division of the work. Dr. P. has here introduced several cases and processes of his own, all of more or less interest; the most of which we believe have been already published. He might, as it appears to us, have considerably enriched his department of plastic surgery, by consulting the very valuable production of M. Serre, of Montpellier, on the Art of Correcting Deformities of the Face. Had he referred to this work, we are satisfied he would have had sufficient reason to borrow not only from the text but also from the plates; and to have substituted something more feasible, as a means of supplying the loss of the lower lip, than the procednre which he has offered as his own, and which appears to be, at least in principle, little else than the revival of the rejected operation of Delpech. In reference to the lower lip, however, we may remark that, unless destroyed beyond the commissures of the mouth, there is little need of any plastic process for supplying the loss. In one instance in which we had occasion to remove the whole lip, excepting merely the commissures, as low down as the reflection of the mucous membrane toward the jaw, by extending a transverse incision at this lower level, and drawing the raw edges on either side into approximation, they united perfectly, and left the patient with a tolerably fair mouth, the commissures appearing to yield, and a sort of lower lip to be supplied, partly in this way, and partly at the expense of the stretching of the upper lip.

The parts about the face and head upon which anaplastic sorgery is exercised, have multiplied considerably of late; giving surgeons opportunity to display their skill, as well as their pedantry, in the multiplication of new terms, as well as of new procedures. As to these beautifying operations, we are disposed to believe that the subjects of them are not generally left so good-looking as they are represented to be in the pictures; some allowance being usually required on account of the artist's skill In the *beau ideal.* As to the new terms, we cannot be induced to believe that *cheiloplasty, meloplasty, uranoplasty, posthioplasty, chalinoplasty, oscheoplasty,* &c. &c., are either more euphonous, or more generally intelligible than *lip-mending, cheek-mending, palate-mending, prepuce-making, frenum-making, scrotum-mending,* &c. &c.

Having now noticed such points in the work before us, as appear to be most worthy of critical observation, we have still to say a word or two as to its general character. It is neither a manual nor a thorough work of reference; yet the practical surgeon, as well as the student, will find it highly useful; going, as it does more fully than any work that has hitherto appeared in the English language, over the field of operative surgery. The omissions and deficiencies, so far as they have a practical bearing, are, after all, comparatively unimportant. The most of them, we have, perhaps, already pointed out. The work, however, has too close a resemblance to the French models to have any great claim to the character of an original production, or even of a laboured compilation; and we are disposed to believe that had Dr. Pancoast given us an honest translation of Bourgery, with notes and emendations, he would have done himself more credit, and rendered a more lasting and acceptable service to the profession, than he has done in preparing the work under its present form.

In due time his book must meet the jealous eye of European critics. In it they will naturally seek for, at least, a full exposition of all that America has to claim in the department of operative surgery. What must be their judgment in finding that many of these claims have been omitted, others of them erroneously attributed to Europeans; and that the work, as a whole, is little else than a reflection of their own authors, errors and omissions included.

In referring to original authorities, out of their own nation, the French are, of all the people of Europe, the least to be relied on. They not only appropriate to themselves every innovation and improvement to which they can establish the slightest shadow of a claim, but so caricature the names of foreign writers, as to leave them scarcely recognizable by the originals themselves; so that whoever habitually copies them, must sooner or later be detected, in their errors, if in nothing else. Napoleon is somewhere made to define ambition as the desire to immortalize a few letters, which, after all, the world would contrive to spell amiss. This sarcasm would never had been suggested to any one who had not been a close observer of the French.

Finally, as to Dr. Pancoast's style, we may observe that without the least pretension to elegance, it is sufficiently clear and perspicuous; and generally correct. We have detected a few such errors as the use of *lays* for *lies*, *flatlings* for *flatlong* or *flatwise*, *cornua* for *cornu*, and perhaps a few others; and a few slight errors in his descriptions, which, however, any intelligent student will readily recognize and correct. On the whole, the work in this respect, considering the evident haste in which it has been prepared, is by no means objectionable; and as to its mechanical execution, it is highly worthy of credit. J. W.

ART. VIII.—*Traité Clinique et Pratique des Maladies des Enfants;* par MM. RILLIET et BARTHEZ, Docteurs en Médecine, &c. &c. *Tuberculizations.* Tome troisième. Paris, 1843. pp. 743.

Clinical and Practical Treatise on the Diseases of Children. Tuberculization. By MM. RILLIET and BARTHEZ. Third volume. Paris.

HAVING, in the last number of this Journal, presented an extended analysis of the two first volumes of this admirable treatise, we would at present direct the attention of our reader to the third and last volume, which well deserves a separate examination. With the exception of about one hundred and fifty pages at the end of it, which contain a short account of entozoa, and an appendix consisting of three chapters, severally devoted to some interesting and valuable remarks upon the physiological condition—a subject of much importance, and especially so in the diagnosis of the diseases of children—to an exposition of the proper method of examining sick children, illustrated by some of their own cases arranged in a tabular form, and to some practical advice with respect to the administration of medicines to children—all of which are well worthy of careful perusal,—this volume is occupied with the subject of tuberculization, that dreadful scourge of the human race, so peculiarly destructive in the earlier years of life, and to which, as

occurring among children, special attention has only within a recent period been given.

In their preliminary remarks, MM. Rilliet and Barthez define tuberculization to be the deposit of tuberculous matter in an organ; to the consumption which succeeds this, in whatever organ it may take place, they extend the name of tubercular phthisis, instead of restricting it to the pulmonary form; to the inflammation which precedes or is the consequence of it, they give the name of tuberculous inflammation. They maintain, and rightly, as we think, that "the great majority of the scrofulous are affected with tubercles, in different quantities, in the external or internal organs, and, most generally, in both at a time. * * Besides, when a lesion called scrofulous, does not coincide with tubercles, it would be necessary to prove that it really is scrofulous, which no one has been able to do," and that, therefore, it would be better to abolish the term scrofula entirely, and substitute for it tuberculization, which has a definite meaning, and cannot lead to misapprehension and doubt. Having thus "defined their position," they enter upon the consideration of tuberculization in general, a disease, whether acute or chronic, more common in childhood than at any other period of life. A description is first given of the principal forms of tubercles, manifesting themselves either in the acute state, as miliary tubercles and what has been called yellow infiltration, or in more elementary or earlier stages, as gray granulation, gray infiltration—which it is impossible to separate from the gray granulation—gelatiniform granulation—described by Laennec, in which description the authors think it impossible not to see an acute tuberculous pneumonia mingled with gray gelatiniform infiltration—yellow granulation and what has been called tuberculous dust (*poussière tuberculeuse*) to which as occurring in the lungs attention has been directed by M. Andral. This last consists in very small, numerous, white or yellow points, not sufficiently close together to constitute a yellow surface, but looking more as if they had been sowed through the tissue, which is almost always invaded by an acute or chronic inflammation, sometimes by gray infiltration. As it has never been met with except in organs presenting other forms of tubercle, and differs from miliary tubercles only in size, and is occasionally collected together in such a manner as to form masses, the authors conclude that its tuberculous character cannot be denied, and that, from the fact that the tissue in which it was seated exhibited either acute or chronic inflammation, or gray infiltration, there is a manifest relation between these forms of tubercle and chronic pneumonia. To the question of the relation of tubercles and especially of gray granulations with inflammation, the authors next direct their attention, after having first examined what is the state of the blood-vessels in tuberculous lungs; an examination which has led them to conclusions, differing materially from those generally received, at least as regards the semi-transparent gray granulations, in which they find or appear to do so, "that the veins and pulmonary arteries are very penetrable (by injections) whilst, on the other hand, the small bronchi are obliterated, an important fact, for, in this last respect at least, the gray tissue would seem to resemble pneumonia, in which the bronchi are also only in part permeable." Vol. iii. p. 21. They admit that this requires further evidence.

Be this as it may, the elucidation of this point is rendered more important by the answer to the question proposed by the authors in relation to

the connection between gray granulations and chronic inflammation. After discussing the opinion of M. Andral, who says that "he has followed them from the moment when they take an uniform reddish colour without increased consistence, to that in which, becoming gray, they are of a semi-cartilaginous hardness," and after presenting examples in support of their view, MM. R. and B. conclude,

"We are well aware that our descriptions are not identical with those generally given of chronic pneumonia; but in no instance have we been able to discover a tissue corresponding with those descriptions; on the other hand, we here find a number of examples of an alteration which is not gray infiltration, nor gelatiniform infiltration, nor carnification (a lesion which the authors have elsewhere described as probably chronic pneumonia), nor acute pneumonia, but of which the characters occupy a middle place between the first and the last lesions, resembling more sometimes one, sometimes the other. It is to this tissue that we give the name of chronic pneumonia, because it appears to us to have its origin evidently in an acute or subacute inflammation. We have never met with it in any but tuberculous children. It is probable, also, that gray infiltration may succeed a chronic inflammation, itself the sequel of acute inflammation: this, however, is not necessary, for the inflammation may be from the outset chronic, and the infiltration may be original, as is proved by the greater frequency of it than of chronic pneumonia." They farther conclude, "that the crude yellow tubercle only succeeds inflammation through the necessary intermedium of semi-transparent gray tuberculous matter and perhaps of the dust." Vol. iii. pp. 26, 27.

In the serous membranes, tubercles manifest less tendency to softening than in other situations, and it is a remarkable fact, which the authors have for their part observed to be invariable, that the perforation of the serous membranes resulting from the softening of tubercles is occasioned by the softening of those seated on their external surface, which also have a tendency to perforate the natural canals with which they are in contact. As regards the general distribution of tubercles in the different organs, the more nearly children approach the adult age, the more generally do we find tubercles limited to the lungs and intestines, and present the same aspect as in the adult. In younger children, we are told, tuberculization often follows different laws. Thus, at times, we find all the organs studded with small, gray granulations, which, if united in one organ, would form a considerable mass, but disseminated throughout, they do not profoundly alter any one: or instead of these, miliary tubercles of an uniform size in all the organs, constituting a larger mass than in the previous case; or, in a third set of cases, considerable quantities of yellow granulations, in several organs, causing at times a degree of disorganization which is surprising. These three forms may be partial or general, the latter most frequently partial, the others more frequently general. In effect, "as a general rule, the number of organs invaded is greater in children than in adults, and certain organs which at a more advanced age are rarely tuberculous, are considerably so at the age we are studying." Vol. iii. p. 45. "The organs which most frequently present tubercles, are also those, in general, where tubercles are most numerous. (These are, in the order of their frequency, the lungs, bronchial glands, then at a long distance the mesenteric or abdominal glands, the small intestines, &c.) The tendency manifested by the organs of children to be tuberculous simultaneously is very great." Vol. iii. p. 49.

The law which was laid down by M. Louis, that no tubercles will be

found in other organs unless they are met with in the lungs does not hold good in the case of children. Indeed, his own observations were made upon individuals over fifteen years of age. M. Papavoine had already pointed out this fact, for in fifty cases of tubercles in children, twelve presented none in the lungs. Of three hundred and twelve cases reported by MM. Rilliet and Barthez, one-sixth or forty-seven had the lungs free from this adventitious deposit. "It is quite frequent," say they, "to find phthisis exclusively thoracic, and it is not rarely exclusively abdominal. Finally, it is sometimes only encephalic and it is only as an exceptional case that we see advanced tuberculization of the abdomen and of the encephalon at the same time, and not of the chest." Vol. iii. p. 53.

An account of the general symptoms, forms, march, duration, diagnosis and complications of the tuberculous disease is followed by some remarks upon the prognosis. In answer to the question, is tuberculization curable, the authors say that its cure is very rare and entirely exceptional. They do not, however, at all call in question the possibility of it, "it being placed beyond doubt by the cicatrices of tuberculous excavations," and by cases "in which positive and undeniable signs of it have disappeared." These, however, referred to partial cases. Where it is general and acute, its curability is very doubtful; perhaps the difficulty of making a diagnosis of such instances would prevent our ascertaining a cure if such were made. Perhaps in the chronic form the prognosis is more favourable, as it is of such cases, that the cures have been reported: for themselves, however, MM. R. and B. say, "that though some tuberculous children have left the hospital, to many the disease, alleviated but not cured, was destined sooner or later to be fatal. We scarcely recollect a single case in which the cure appeared to us complete." Vol. iii. p. 85.

The causes of tuberculization next occupy attention. They believe that a predisposition to its attacks necessarily exists, that it must be congenital, and that though generally hereditary, it is not necessarily so as daily experience evinces. It may be modified during life by the circumstances in which the individual is placed, and indeed may never be called into activity. At any rate, those who assert that this predisposition may be acquired, must first prove that it did not already exist. The causes which have a tendency to render active this predisposition are inheritance—the authors believe that this cause alone may determine the development of the disease without the intervention of any other occasional cause, or at least of any which are not so obscure as to be inappreciable—anti-hygienic circumstances, among which are deterioration of the air habitually breathed, constant exposure to humidity of the atmosphere, bad and insufficient food, sedentary occupations, onanism, and, in patients situated as were those observed by the authors, prolonged residence at the hospital. The authors think, and with reason, that too much stress has been laid upon the operation of each of these separately, no one of which is indispensable, while they are evidently very efficient when acting together, producing a vitiated condition of the blood, and consequent imperfect nutrition of the system. Another set of causes which may awaken the predisposition to tubercles, is anterior diseases. The operation of these is most carefully studied in the pages before us, but as we have several times had occasion to refer to their influence when studying the diseases themselves, as variola, rubeola, &c., we will not here repeat the observations then made. "Inflammation may be a cause of tuberculization,"

say the authors; "pneumonia and entero-colitis are those phlegmasiæ which most frequently determine this disease. It appears to us, however, that their action is less frequently exerted than that of the anti-hygienic causes; besides we find that it is rather rare that alone they are sufficient to cause the appearance of tubercles; they are especially active in the cases of children which have been subjected to the action of debilitating circumstances." Vol. iii. p. 112. Whooping-cough may, under the same circumstances, terminate in the deposit of tubercles in the lungs and bronchial glands; how it acts, it is impossible to say. Typhoid fever very rarely, if ever, is a cause of this deposit. The conclusions of the authors that tuberculization is more frequently met with between the ages of six and fifteen and in the female sex, agree with those previously announced by M. Papavoine. "We remark, in conclusion," say they, "that most of the causes are debilitating, and that the others, exciting at first, are followed by the formation of tubercles in consequence of the secondary debility they induce."—Vol. iii. p. 129.

The consideration of these different points is followed by an excellent article on the treatment of general tuberculization, and especially on the best method of preventing the development of the predisposition and the outbreak of the disease. Our space will not admit of our dwelling longer upon these general considerations, and we must hasten to notice some of the more important matters connected with the occurrence of tubercles in particular organs. We commence, in the order of the book, with those of the bronchial glands.

Tuberculization of the bronchial glands, which is almost peculiar to childhood, is, at this age, both frequent and serious, and gives rise to symptoms with difficulty distinguishable from those due to pulmonary phthisis. The symptoms which characterize it are the result of the pressure they exert, in consequence of their greater or less increase of size, upon the surrounding organs.

"Thus by compressing the superior vena cava, they cause œdema of the face, dilatation of the veins of the neck, violet-colour of the face, hemorrhage into the great arachnoid cavity; from compression of the pulmonary vessels may result, hæmoptysis (which is rare among children, except from rupture of a vessel), and œdema of the lungs: when the pneumogastric nerve is compressed, there may occur changes in the tone of the cough and voice, paroxysms of cough resembling those of pertussis (rarely, however, attended with whistling inspiration or vomiting), and attacks of asthma entirely unusual among children: by pressure on the air-passages are produced intense, very persistent and, at times, peculiar toned sonorous rattles, and the circulation of the air is prevented, causing an obscurity of the respiratory murmur, which may also be due to the œdema arising from the pressure on the vessel. * * * The production of these symptoms, which are not always present, nor all at the same time, is subordinate to the position of the glands, and to their developmeot in certain directions in preference to others."—Vol. iii. pp. 199, 200.

Besides this, by acting as conductors of sounds, either normal or anormal, within the chest, these glands thus enlarged may lead to errors of diagnosis in respect to the diseases which may be actually existing in the chest. As to the causes of this form of disease, the authors have not observed that any of those mentioned, when speaking of tuberculization generally, are particularly liable to produce it. They have found the glands, in the centre of which the tubercles were seated, with evidences of acute inflammation, but this was unquestionably secondary: at other times,

they have seen "besides these deposits, a firm, almost semi-transparent, gray tissue, generally looked upon as a chronic engorgement, and which is, in reality, either a chronic inflammation, or gray infiltration," preceding ordinarily the yellow tubercle. Farther than this, the investigations of the authors have not extended, so as to be able to pronounce upon the connection between these appearances in the glands and their inflammation.

The next chapter is devoted to the consideration of tubercles in the lungs, which are studied most carefully, as their importance fully warrants. We can only present, however, a few of the points upon which much stress is laid, and which are illustrative of the peculiarities of the disease as witnessed in childhood. All the forms of tuberculous matter may be developed in the lungs. Gray granulations are met with frequently in tuberculous lungs, as often on one as on the other side, more generally in the upper than in the lower lobe, usually in considerable quantities, sometimes without the presence of any other form, very rarely so, however, in one lung alone, when the other is entirely free from tuberculous matter of any kind. Gray infiltration, which is rarer than the granulations, increases in frequency with the age of the children, from one in fourteen cases, between one and two and a half years, to one in three or four, between eleven and fifteen years. It is more abundant in the upper lobes, and sometimes exclusively confined to them, rarely, however, invading a whole lobe. In this form of the disease, the large bronchi, even to the third and fourth divisions, present very often an intense inflammation, accompanied sometimes with partial dilatations, so as to resemble a collection of little cavities in the midst of the gray infiltration. We have already had occasion to notice the authors' opinions in reference to what they consider chronic pneumonia. Tuberculous dust, (*poussière*,) of which a few examples have been collected, in two of which it was the only kind present in the lungs, is met with in the midst of the gray infiltration, and of acute and chronic pneumonia. It is much more frequent between eleven and fifteen years, occurs more usually in the upper lobes than in the others, and generally in but one at a time. Somewhat less frequent than the gray, and occurring under the same circumstances, yellow granulations are found in about one-fourth of the children with tuberculous lungs and rather more frequently between three and ten years, than at any other age. Miliary tubercles invade the lungs the most frequently of all the forms, being met with in about two-thirds of the children, chiefly between the ages of eleven and fifteen, and after that between one and two years, rather more often on the right than left side, frequently on both, and generally more abundantly in the upper than the lower lobes; in more than one-third of those which had miliary tubercles, they were the only kind. Yellow infiltration manifests itself externally by yellow plates on the surface of the lungs, extending inwards and surrounded by miliary tubercles or yellow granulation, with a tendency to unite with the tubercles of the bronchial glands, or occupies the interior of a lung, or even a whole lobe, "situated sometimes at the extremity of a dilated bronchus, of which it closes the cavity, and in which it remains naked without being softened," having made its way through from without by progressive enlargement of its dimensions, and at a later stage being softened and forming a tuberculous cavity: it is met with in about one-third of the cases of tuberculous lungs, and somewhat more frequently between the ages of one and two and a half years than at any other time. Generally, equally often deposited in the

right or left lung, it is only found in both lungs at a time in one of nine cases. "It is a singular fact that children between one and two and a half years of age present yellow infiltration in the right lung much oftener than in the left, but at all other ages oftener in the left than in the right. We shall see that an analogous difference exists with regard to caverns."—Vol. iii. p. 230.

In about half the children in whom this was observed, it was limited to the superior lobe, in a fourth to the inferior, and in the other fourth it was distributed between two or three. "Softened tubercles are encountered more frequently in the lungs than in the other organs," and generally in the interior of caverns or in the midst of considerable masses of yellow infiltration. They are much more common from eleven to fifteen, and from one to two and a half years, than during the intermediate time, and oftener occur in the right than the left lung, scarcely ever in both at a time. "The structure of caverns does not essentially differ in the adult and the child. * * * The caverns, especially in very young children often present a disposition entirely different from that which we have just described in adults. Thus a whole lobe, sometimes even a portion of the neighbouring lobes also, is entirely converted into a vast yellow infiltration, in which we behold the bronchi, the vessels, and even the parenchyma disappear. In the centre of these masses, the tuberculous matter, softened throughout a greater or less extent, and partly evacuated through the largely ulcerated bronchi, has left an anfractuous cavity lined in almost all its extent by enormous half-softened tuberculous fragments. If these are removed, a red membrane analogous to that in other caverns, is observed, raised by vessels either empty or filled with clots: elsewhere every thing has disappeared, even the pleura, which can no longer be discovered. These caverns are the result of the softening of the yellow infiltration alone, and could not be attributed to eliminatory inflammation developed in the pulmonary tissue, seeing that this no longer exists at the centre, and that at the points of the surface where it is in contact with the tuberculous matter, this last is in a crude state."—Vol. iii. p. 233.

As regards frequency, caverns are less often met with in children than in adults, "less than one-third of the children presenting them, one in three cases between one and two and a half years, less than one in five between three and five and a half, less than one in three between six and ten and a half, and less than one in two between eleven and fifteen. The frequency of tuberculous excavations in the youngest children is explained by the greater frequency of yellow infiltration at that age, and by the facility with which these large tuberculous masses soften themselves at their centre, (as shown above)."—Vol. iii. p. 235.

In the older children, the caverns, which seem to follow the same laws as those of adults, are rather more frequent on the left than the right side, in the younger, where they seem to follow the laws governing the yellow infiltration, on the right than the left; in the older, they are most frequently met with in both lungs at a time, very rarely so in the younger. They occur one half oftener in the upper than the lower lobe, in children generally, but four or five times oftener in the older, while in the younger they are relatively more frequent in the middle and inferior lobes.

Cicatrization of caverns is, we are told, perhaps more rare in childhood than at any other age, still its occurrence cannot be called in doubt, as it

is generally manifested externally, though not always, by a wrinkling of the pleura, with a more or less marked depression, as in adults.

As regards the secondary lesions, we have already noticed the bronchitis which attends the yellow infiltration. Another form is met with, where caverns exist, attacking the large bronchi, and again where there is considerable pulmonary tuberculization, formed of isolated, crude tubercles. It is often very intense here and is at times even accompanied with ulceration of the bronchial mucous membrane, "due to the severity of the inflammation or to the presence, perhaps, of that muco-purulent liquid with which the bronchi are constantly in contact."

The authors take much pains to estimate the value of the physical signs to aid in the diagnosis not only of the tuberculous affection of the lungs from other lesions of these organs, but of each form of that affection as far as it can be done with any reasonable prospect of success. They lay down clearly the results of their own experience, but do not, for one moment, attempt to conceal the difficulties which will meet the observer at each step. We cannot attempt an analysis of this interesting article nor of that which relates to the rational symptoms. Two of these which are so important in the adult lose all their value in the child, especially when very young, viz., expectoration, which is almost always absent under six or seven years, though after that it may exhibit the same important indications as in the adult, and hæmoptysis, (a form of expectoration, it is true,) which is very rare in children, almost always wanting at the commencement of the disease, and when it appears generally occurring suddenly at a late period of the attack, being then fatal.

In the chapter on tuberculization of the pleura, the authors consider tubercles of that membrane and pleurisy and pneumothorax in tuberculous individuals. Tubercles may occur either within or externally to the pleura, in the first instance causing compression of the lung, but rarely softening and never perforating the serous membrane, in the other case, giving rise to tuberculous layers, causing ulceration of the pleura, communicating freely with the bronchi through perforations of the lungs, or forming large tuberculous masses by uniting themselves with a tuberculous infiltration on the surface of the lungs and even with the tuberculous bronchial glands and the masses in the lungs at the same time. This affection rarely commences with acute symptoms, and, if it does, soon subsides into the more usual chronic, insidious form, which advances gradually but certainly and is finally fatal rather in consequence of the co-existence of general tuberculous disease or of the occurrence of some acute complication, than from any cause directly referable to the disease in the pleura.

As to pleuritic inflammation in tuberculous individuals, it was always a serious affection in the cases observed by the authors, occurring at a late period in children who were already labouring under advanced phthisis and evidently hastening their death. "Pneumothorax is not very rare among children in the course of pulmonary tuberculization. It occurs, generally, in cases in which tubercles are very numerous, but it is much more rare to meet with perforations at the level of caverns in children than in adults." They may, however, be found in these situations, or they may result from the union of glandulo-pulmonary tuberculous masses, or from the rupture of an emphysematous bulla.

Tuberculization of the pericardium is very rare, having been observed but ten times in three hundred and twelve cases, and only twice present-

ing any degree of gravity; that of the tissue of the heart itself, the authors believe to be infinitely rare.

As regards tubercles and ulcerations of the larynx, the authors observe, that whenever a child, evidently tuberculous, complains of pain in the larynx, the voice becoming rough, veiled or partly extinct, the cough being at the same time hoarse, we may almost certainly announce that it is attacked with ulcerations of the larynx, seated on the vocal cords, provided, however, that these symptoms are not accompanied with paroxysms of suffocation or that the throat is not affected with pseudo-membranous inflammation. They believe with M. Louis, that the ulcerations are caused by the irritation of the secretions from the bronchi and caverns passing over the mucous membrane of the larynx, because they occur almost exclusively in children who expectorate, because they are more numerous as the expectoration is more copious, and because the bronchi are, in these cases, gorged with a fetid, grayish liquid. The same causes give origin to ulcerations in the trachea in tuberculous cases.

Tuberculization of the peritoneum is, like that of the pleura, studied under three heads. 1st. Peritoneal tuberculization; 2d. Acute peritonitis in tuberculous individuals, whether tubercles exist in the peritoneum or not; and 3d. Chronic peritonitis in tuberculous individuals. Tubercles occurring in the cavity of the peritoneum, like those met with in the cavity of the pleura, have no tendency to perforate the serous membrane, while those external to it tend to penetrate into its cavity and also into the intestinal tube. Vomiting, a symptom frequent in acute peritonitis, is entirely absent here, while diarrhœa, more or less copious and frequent, was present in every case, though this might be accounted for by the fact that either ulceration or softening of the mucous membrane of the bowels was also observed in all.

Acute peritonitis, in tuberculous cases, generally appeared at an advanced period of the disease, hastening the death of the sufferer, and manifesting itself sometimes by evident symptoms of inflammation, at other times remaining latent. Chronic peritonitis may exist independently of tubercles in the peritoneum, coinciding with tubercles in other organs and parts of the body, and giving rise to the belief of the existence of tubercles in the peritoneum.

Contrary to the generally received opinions, MM. Rilliet and Barthez state, that tuberculization of the mesenteric glands is far from being a frequent affection in the first period of childhood. "If we restrict the name of mesenteric phthisis to those cases in which the mesenteric tuberculization is considerable, only about one-seventh of all the children having tuberculous mesenteric glands will be included and only about one-sixteenth of all who present tubercles in some part of the body. If we give that name to all in which are found commencing or but slight tuberculization of the mesenteric glands, we still include one half the cases of tuberculous children, for tubercles have been found there in about that number."—Vol. iii. p. 406.

They further state that this disease "never or almost never attacks children under three years of age, that it is lighter the younger the child is, that it reaches its maximum of development between 5 and 10 years, after which it is very rare." Vol. iii. p. 322. And that the reason why it has generally been considered so frequent among children, is that other diseases, as tuberculous peritonitis, enteritis, &c., have been mistaken for it.

Of the mucous membranes, the only one in which tubercles have been

observed by MM. Rilliet and Barthez, is that of the gastro-intestinal canal. They were met with only of the miliary form, either crude or softened, commencing beneath the mucous membrane, either within or external to the muciparous glands, and resulting in ulcerations. The semi-cartilaginous granulations, said by M. Louis to be very frequent in adults, have never been seen by the authors, which is somewhat remarkable, seeing "that, elsewhere, these granulations are, in general, much more common in childhood than at any other age." The chapter on gastro-intestinal tuberculization is a very interesting one, and in it the authors show how impossible it is to distinguish the symptoms caused by these tuberculous ulcerations from those due to chronic enteritis, in which no tubercles are found, and how serious and fatal a disease it is as well from its own consequences as from the complications which are liable to attend it.

Tubercles of the liver, which are much more frequent in children than in the adult, in whom they are very rare, have been observed in the form of miliary tubercles and gray granulations in about one-fourth of all the cases, though they have been revealed during life by no special symptoms. As regards the fatty degeneration of the liver, the authors remark that it is far from being peculiar to tuberculization, it being scarcely more frequent in tuberculous children than in those who are non-tuberculous; nor is the intensity of this lesion proportioned to the extent of the tuberculization. The authors have almost exclusively met with it, when independent of tubercles, in the continued fevers, in the following order as respects frequency, variola, rubeola, typhoid fever and scarlatina. When it occurs without hypertrophy of the liver, it gives rise to no special symptoms. The youngest children are evidently most disposed to it, those with few or no tubercles more so than those which are very tuberculous, the liability to it in these last increasing with the age. Girls are more liable to it than boys when it is connected with tubercles, less so when these are absent. In the kidneys, tubercles are much more often met with among children than among adults. All forms are not equally frequent, miliary tubercles being most often observed and then gray or yellow granulations. It is much more rare to encounter large tuberculous masses or to see the kidneys reduced to the state of cyst or cavern. Nor does tuberculization of the kidneys often reach a high degree of intensity or constitute an important alteration, for when advanced, it generally coincides with an advanced state of the general disease, and in general is only an epiphenomenon upon this, having little influence upon its march and termination, and indeed, as far as we at present know, revealing itself by no especial symptoms. Nor have we any means of diagnosing tuberculization of the spleen, where the morbid deposit is very frequently and abundantly made, and in all its forms. Being ignorant of its functions and not meeting with hypertrophy of it, we are left entirely in the dark as to the symptoms occasioned by its tuberculization.

The concluding one hundred and thirty pages on tuberculization are devoted to the consideration of this lesion in connection with the nervous centres; and in them we have an admirable, perhaps unsurpassed, account of the pathological anatomy of meningo-cephalic tuberculization and of the secondary lesions of the encephaloo, of the symptoms, diagnosis, causes, prognosis, march, treatment, &c., of acute hydrocephalus or tuberculous meningitis, of the history of tubercles of the brain, of the latent tuberculization and inflammation of the brain and of its membranes, and of tubercles of the bones of the cranium with the accidents they may

cause. It would be impossible to attempt, in a small space, an analysis of this chapter or even to hope to be able to present more than a sketch of the authors' views upon these important subjects.

The meningeal tubercles are always seated, with the exception of one case, as far as the authors' experience goes, externally to the arachnoid, in the meshes of the pia mater, and more frequently at the convexity than at the base of the brain. It is, indeed, rare to meet with them at the base without finding them also at the summit. The cerebral tubercles may occur primitively in the cerebral substance, and are more frequently met with in the hemispheres than in the optic couch and the central parts generally. They are about as frequent, too, in the cerebellum as in the cerebrum. The authors have no doubt of the granulations of the meninges being tuberculous. Inflammation of the meninges is a frequent affection in tuberculous individuals whether the tubercles are found in the meninges or in other parts of the system, and independently of the meninges, and presents the same characteristics in both cases. In addition to the tubercles which are generally, in these cases, found in the pia mater, the evidences of inflammation are met with, characterized by a secretion of concrete pus or of false membranes in the pia mater, which is thickened, yellowish or greenish, friable and sometimes adherent to the surface of the brain; this last presents a white, creamy softening of its central parts, occupying, in the great majority of cases, the septum lucidum, the fornix, &c., due probably to the infiltration of serosity, (which is in greater quantity than natural in the ventricles,) through the ventricular linings. At the same time there is a deposit in the other organs of tuberculous matter somewhat advanced, or which has put on an acute form. Meningitis is incomparably more frequent at the base than at the summit of the brain, and it is common to meet with it at the base alone.

In order to give a general idea of the symptoms which characterize tubercular meningitis, we will here reproduce from the authors a synoptical table which contains its prominent symptoms and those of simple meningitis, from which it is very important to diagnose it.

Tubercular Meningitis.	*Simple Meningitis.*
At the commencement headache varying in intensity, vomiting, constipation, slight acceleration of the pulse. In the great majority of cases, preservation of the intelligence.	At the commencement, very intense headache, excessive agitation accompanied with screams, preceded or followed by coma or stupor, prolonged chilliness, followed by high fever, frequent, copious, bilious vomitings, with or without constipation.
Appearance that of a light disease.	Appearance that of a severe ataxic disease.
Insidious commencement.	Sudden commencement of a severe acute disease.
March rather slow, irregular, with alternations of amelioration and aggravation, diminution of the frequency, and irregularity of the pulse; nervous symptoms, varying in form, continuance and severity, agitation, in general slight, often calm delirium.	March rapid, aggravation progressive and incessant, often persistence of the febrile movement, nervous symptoms of the same nature, except the agitation, which is *excessive*, and continues till death, agitated delirium.
Duration rather long, rarely less than seven days, and sometimes beyond fifteen, twenty, forty days.	Duration most generally very short, continuing then thirty-six hours, rarely prolonged beyond the fourth day. —Vol. iii. p. 519.

The authors state they have never met with a case of tubercular meningitis terminating in a cure, a result which is in accordance with the experience of most recent observers, and which the improvements in diagnosis only tend to render more certain. Among the symptoms upon which great stress is laid in the description of this disease is the condition of the pulse; we are told by MM. R. and B. "that in a considerable number of cases of all kinds of diseases simple or complicated, acute or chronic, they have scarcely found the pulse at the same time irregular and permanently diminished in frequency except in the tuberculo-inflammatory affections of the brain and its dependences."—Vol. iii. p. 502.

Tubercles of the brain itself present so many differences in their march, relations, &c., that it is very difficult to trace a general description of them. MM. R. and B. divide their sketch, which is founded upon some thirty-four cases, twelve of their own and the others extracted from various sources, into three parts,—chronic cerebral tuberculization, commencing during good health, or perhaps with tuberculous diathesis, marked by violent and repeated convulsions, either accompanied or not with headache, vomiting, &c., and followed by muscular feebleness, paralysis, &c., death resulting either from the progress of the disease, or from some acute affection, after three or four months or longer,—chronic tuberculous hydrocephalus, which may be the consequence of the former, presenting as its first symptom, in rare cases, an increased volume of the head, more generally the nervous symptoms above noticed of chronic cerebral tuberculization, occurring almost always after the age of two years, generally between four and nine, and continuing for months—and finally cerebral tuberculization, revealing itself by acute symptoms. This is generally preceded by symptoms indicative of local or general tuberculization, commences with violent and quickly repeated convulsions, sometimes followed by profound coma soon ending in death. When this does not occur so rapidly the convulsions alternate with different cerebral symptoms, as headache, contractions, partial paralysis, strabismus, &c. Its duration is from two to thirteen days. The authors can find no relations between the seat of the tubercles and of the convulsions, though occasionally the latter are unilateral when the tubercles are so. They are inclined to attribute the convulsions, in great part, to the ventricular effusion which takes place in these cases; they state that in all the cases of contraction which they observed, a symptom almost never observed at the commencement, but persistent afterwards, the cerebral substance was softened around the tubercles. In relation to the diagnosis of the disease, we find this remark:

"We have elsewhere stated that an explorative puncture appeared to us the sole means of distinguishing arachnoidean hydrocephalus from ventricular hydrocephalus. We are the more inclined to counsel this procedure, as since the printing of our second volume, we have become acquainted with a very interesting case published by Dr. Plaisant,* in which the evacuation of a copious effusion of sanguinolent serosity into the grand arachnoidean cavity, was attended with the happiest result. The method followed by him (he makes a large incision) appears to us much more dangerous than that which we propose: and as the child was cured, this induces us to insist upon the utility of this operation."—Vol. iii. p. 567.

Latent tuberculization of the meninges and of the brain, may exist in a certain number of cases, as shown by MM. Piet and Green, with whom

* Gazette Médicale, April 25, 1840, p. 269.

the authors agree "that, in a certain number of eases, the meningeal granulations give rise to no symptoms, that they may or may not be accompanied with ehronie inflammation, and we will add," say the authors, "with *acute inflammation;* at the same time we have seen the symptoms of the most clearly marked meningitis exist without a trace of cerebral or meningeal inflammation."—Vol. iii. p. 579.

With the exception of mournfuloess, ehanges of character and disposition, and sometimes convulsions, which may extend back for several months, indicating the probable commeneement of eerebral tuberculization, all the other symptoms, as coma, eonvulsions, &c., say the authors, present themselves only immediately before death, and therefore we can do nothing to arrest the disease, except by treating symptoms as they arise, aod attendiog to the adoptioo of hygienie rules likely to favour an improvement in the health.

The concludiog article of this ehapter relates to tuberculization of the hones of the cranium, the authors referring to the admirable paper of M. Nélaton for a description of the anatomical alterations, and eontenting themselves with an account of the phenomeoa occasioned by tubercles "developed far from the organs of the senses, or when placed in the neighbourhood of the orbitar cavity, or when situated about the ethmoid bone, or finally when they are developed in the petrous portion of the temporal bone, occasioning what has been variously called chronic, or tubereulous, or eerebral otitis by authors."

Thus imperfectly have we endeavoured to present to our readers some account of one of the most extraordinary works of the modern French school, whether we look at the patience and persevering industry with whieh the authors laboured to collect the materials and to reduce them to order, at the mass of incontrovertible facts which they have analyzed and recorded, or at the important, and, in many instances, entirely unexpected results, which flowed from them and which the authors have never hesitated to express, giving, at the same time, the means of correcting their assertions if found conflicting with the observations of future studeots. We do not hesitate to say, that, taking it under every aspect, it is, without questioo, the most eomplete and truly scientific work on the diseases of children extant, and we ean, therefore, well understand why it has been authorized by the Minister of Publie Instruction in France, to be used as a text-book in the schools of that country. In its language it is simple, clear and unpretending, in its management, it is thoroughly scientific and free from repetition, in its matter, it is founded upon facts either the result of the authors' own experience, or which have been published or placed within their reach, by persons in whom reliance eould be reposed. In addition to these characters of the book, we must bear in mind, in estimating its value, the qualities of the authors themselves; patient, untiring research, a discriminating judgment, an undeviating adherence to their principle of stating facts alone aod leaving theories to take care of themselves, and—to judge from the historical accounts of the diseases which they present—a thorough knowledge of the writings of Europeans, and, in many instances, of our own authors upon the diseases under consideration—qualities which eminently fitted them for the task they have so worthily executed and which lead us to hope that they may be spared to fulfil the promise they have given of continuing their labours in the same direction.

C. R. K.